TIP
The Industrial-Organizational Psychologist
A publication of the Society for Industrial and Organizational Psychology, Inc.
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*IN THIS ISSUE:*

Conference Preview

New Column: The Bridge

I-O Down Under

And much more...

TIP The Industrial-Organizational Psychologist
A publication of the Society for Industrial and Organizational Psychology, Inc.

**Welcome to the online version of**
***The Industrial-Organizational Psychologist.***

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Mission Statement: *The Industrial-Organizational Psychologist (TIP)* is an official publication of the Society for Industrial and Organizational Psychology, Inc., Division 14 of the American Psychological Association and an Organizational Affiliate of the American Psychological Society. The purpose of *TIP* is to provide news, reports, and noncommercial information related to the fundamental practice, science, and teaching issues in industrial and organizational psychology.



Please send suggestions and comments via e-mail to Morrie Mullins, *TIP* editor, or to Jenny Baker in the SIOP Administrative Office.

# HOGAN

## PREDICTS PERFORMANCE

THE SCIENCE OF PERSONALITY

# TIP Table of Contents April 2016 Volume 53, Issue 4



## Editorial Columns

## Feature Articles

## Reports

# President's Message

**Steve W. J. Kozlowski**
Michigan State University

The big news since my last update of SIOP's activities (see my penultimate column in the January *TIP*) is that SIOP Executive Director (ED) Dave Nershi announced his plans to retire effective 1 May 2017. Dave has been SIOP's ED since 2005 and he has been extraordinarily effective in supporting your elected leadership, managing the Society, and delivering a wide range of services to SIOP members. His service as ED has been instrumental to SIOP's flourishing as a professional association. Finding a new ED to succeed Dave is critical to SIOP's future evolution. Dave's retirement announcement was not anticipated, so as you can imagine, it demanded my full attention because SIOP did not have an ED succession plan in place.

Dave notified SIOP's senior elected leadership—President-Elect **Jim Outtz**, Past-President **Jose Cortina**, Financial Officer and Secretary **Scott Tannenbaum**, President-Elect Designate **Fred Oswald**, and me, in early January, approximately 4 weeks prior to the winter Executive Board (EB) meeting scheduled at the end of January. I felt it was very important that SIOP's senior leaders should act with dispatch to craft an ED search process. First, although it may seem like May 2017 is far in the future, it is actually a very tight timeframe to recruit, assess, select, and train a new ED. Second, I wanted to ensure that the search process we designed would be briefed at the EB meeting so it could be discussed and would have support and consensus across the EB membership. Below I describe the structure and process of the SIOP ED search.

First, as SIOP's senior elected leaders, we formed an ED Search Steering Committee (SC). The functional role of the SC is to *guide and advise* the overall search process and, in particular, to *provide linkage* to the SIOP EB because it is the voting members of the SIOP EB who will ultimately determine who the next ED is to be. The SC consists of SIOP's elected senior leadership: **Steve Kozlowski**, President; Jose Cortina, Past-President; Scott Tannenbaum, Financial Officer/Secretary; Fred Oswald, President-Elect Designate; and the President Elect. Jose's formal governance role as past president will conclude in April leaving the SC composed of a balance of four science- and practice-oriented elected leaders.

Second, the most important initial priority for the SC was to design and compose the Selection Advisory Committee (SAC) that would have operational responsibility for recruiting, assessing, and prioritizing potential ED candidates. In other words, the SAC will do all the heavy lifting with respect to identifying a qualified pool of candidates for the ED position. Thus, in composing the SAC, we wanted to ensure that its members:

(a) possessed SIOP executive leadership experience (i.e., SIOP past presidents);
(b) had relevant professional expertise in assessment, selection, and leadership;
(c) represented a balance across science and practice orientations; and
(d) comprised a diverse set of I-O psychologists.

**Bill Macey** led the ED search process that selected Dave Nershi a decade ago. He graciously agreed to lend his experience and expertise to lead the SAC. In consultation with Bill, we composed the membership of the SAC to ensure that it possessed SIOP leadership experience, relevant professional expertise, balanced science–practice orientations, and diversity. The structure and process of the ED search, and the membership of the SAC were briefed at the winter EB meeting.

As noted, the SAC will design and have operational control over all phases of the ED search process. Its members are Bill Macey who serves as co-chair, with operational responsibility for SAC; Fred Oswald, who also serves as co-chair, with liaison to the SC; **Tammy Allen; Milt Hakel; Ann Marie Ryan; Neal Schmitt;** and **Nancy Tippins**. I trust that you will agree that SIOP is very fortunate to have this stellar group of seasoned I-O psychologists working on our behalf to find a new executive director for SIOP.

Functionally, the SAC will develop and execute the process for recruiting, assessing, and identifying a pool of qualified ED candidates. In consultation, the SAC and SC will prioritize the pool of qualified ED candidates. The SC will present the results of that process to the EB with appropriate input from SAC members. The ultimate decision for who to hire as SIOP's next ED will be made by the voting members of SIOP's EB. We hope to conclude the process by late 2016 so the ED designate will have an opportunity to shadow Dave and come up to speed on the role. Elsewhere in this issue of *TIP*, Bill Macey has provided an overview of SAC's initial planning for the search. The SAC will provide regular updates to SIOP membership as the ED search process takes shape and unfolds.

In other governance news, your president elect, **Jim Outtz**, was appointed to the APA CEO Search Committee, where he would have joined SIOP Fellow **Rodney Lowman**. This is an influential opportunity for Rodney to share SIOP's expertise, to enhance the visibility of industrial and organizational psychology within APA, and, hopefully, help to select an effective CEO for APA.

The early registration numbers for the SIOP Conference in sunny southern California were released recently (mid-Feburary, as I compose this column) and they broke the 3,000 barrier. According to

Dave Nershi**,** that's only happened once before (Chicago, 2011). I hope that you are among the early registrants (or even a late registrant!) and that I will see you at the conference. The quality of the meeting space is exceptional, the program is fantastic, and an outstanding conference will be had. In that regard, I want to acknowledge the exceptional effort, energy, and creativity exhibited by everyone associate with the SIOP Conference—our premier event of the year! Many thanks are due to **Evan Sinar**, Conferences and Programs Officer; SIOP Conference Chair **Eden King**, and Chair-in-Training **Daisy Chang**; SIOP Program Chair **Scott Tonidandel** and Chair-in-Training **Zack Horn**; the Program Committee and the legion of reviewers for their herculean efforts to assemble the conference program; and to **Dave Nershi** and everyone in the AO! I would also like to acknowledge Presidential Theme Track Chair Zack Horn and his committee members **Tara Behrend, Stu Carr, Gloria Gonzalez-Morales, Ryan Johnson,** and **Emily Stehura** for the creative set of presentations and activities they have organized to showcase my theme of *having an impact and making a difference.*

With April comes renewal. In my last column I congratulated newly elected SIOP officers who will take their seats on the EB following the SIOP conference, and they will be joined by many new committee chairs and committee members. In other renewal news, **Morrie Mullins**, who has served as *TIP* editor for the last 3 years will be stepping down. Morrie has done a fantastic job with *TIP,* and I know that the role was a real developmental experience. Thanks, Morrie! Following a structured search, I am pleased to announce that **Tara Behrend** will be *TIP* editor commencing in July 2016. Congratulations, Tara!

Finally, also on a renewal theme, this is my last *TIP* column as your president. It has been a privilege to serve as the president of SIOP. I owe so many thanks to so many of you for all the help and support that you have provided to me and for making this leadership experience one of the most rewarding ones that I have occupied across my career. Following an outstanding Conference, I will be handing over my position and I know the new president will be the beneficiary of the same deep support. Many thanks to all of you for making SIOP a very special professional society—*small, yet mighty!*

Contents | Features | Editorials | Reports | my.SIOP


**Morrie Mullins**
Xavier University

## SIOP Will Not Mow Your Lawn

Three years ago, when I became editor of *TIP*, I had no idea what I had gotten myself into.

I mean that in the best possible way. Which is not to say, I suppose, that I didn't have some delusions early on.

It was probably late March 2013, so I wasn't fully "official" yet, and I was out mowing the lawn for the first time that season. I had my earbuds in, my Zune blasting away, and my brain musing about what would be different, now that I was an editor. Because editors are, I have always believed, Important People.

I was on the cusp of becoming an Important Person! Wasn't it the case that Important People didn't mow their own lawns? Being an editor had to have some perks, right? Why, now that I was Important, I might never have to mow my own lawn again!

I didn't take the thought seriously, of course. No one should be even a little surprised that 3 years and one new lawnmower later, I'm still cutting my own grass. SIOP has done a lot for me over the past 3 years, but lawn maintenance never made it to the list.

What I'd like to do, then, is share with you what SIOP *has* done for me, and offer some advice to future editors as to what they might expect. I don't think this is advice the incoming editor, **Tara Behrend**, actually needs, but she and all of her successors are welcome to republish this advice in perpetuity—coming, as it does, from an Important Person like myself.

*SIOP will introduce you to people you might have never had the chance to work with, otherwise.* Ten, maybe 15 years ago, I remember standing at a poster session with a graduate student when a familiar-looking man approached, stared at the poster for a few minutes, and handed my student a card. "Could you send me a copy?" As he turned to walk away, my student gasped and held the card out to me, thrilled to have just had **Wally Borman** request her paper. Wally must've heard the gasp, because he turned, chuckled, and said, "You can collect those and trade them with your friends, too." #butNoGum

The thing many of us don't appreciate, when we attend our first few SIOPs, is that all those "big-name" people we keep reading papers by are really just people, at the end of the day. I have had interesting, collegial interactions with people whose work I have admired for years as a result of this editorship. SIOP will do that for you.

*SIOP will help you find your inner leader.* My biggest trepidation, when accepting the editorship, was that I wouldn't be able to effectively lead *TIP* through what seemed like it might be a bumpy transition. (Spoiler alert: It was!) I inherited an editorial board that included people who knew the editor's job better than I did, in many cases, busy people who wrote for *TIP* because they care about the Society and our field.

At one point, I had someone tell me that managing an editorial board is like herding cats.

Nothing could be further from what I experienced. I mean, to start with, I've never met a cat with an IQ north of 130.

More relevant, though, is that every one of *TIP's* columnists knew the expectations coming in: a column every 3 months; topic, more or less, of their choosing. These are all professionals, so I had to find a leadership style that best supported them, in this little sliver of their lives. This meant reminder emails, timely follow-up on questions, and respecting their authorial voices. It also meant finding ways to take their passion for what we do and shaping it into something thematic. It was a challenge, but SIOP will do that for you.

Did I make mistakes? Absolutely. Some of them were pretty visible, too. Which takes me to…

*SIOP will give you the opportunity to identify your strengths and "areas for improvement."* My first title for this section was, "opportunity to screw up." But really, life gives you that opportunity. SIOP gave me something more specific.

For example, how many of you remember our first issue? What it looked like, compared to this one? Here: from the wayback machine…


The Editor's Out-Box

The Editor's Out-Box

Morrie Mullins
Xavier University

Morrie Mullins - TIP Editor

My graduate school funding came from two sources. One of those was a grant, which while awesome and very important to letting me eat and pay rent, is not germane to the present discussion. Much more important was a project funded through what I think was a NIST/NASA grant, in which I was part of a project team tasked with evaluating a new initiative. There was this "Internet" thing that was starting to gain traction, you see, and we wanted to determine whether an online resource, targeting manufacturers and attempting to meet their needs, would be viewed as at all useful/useable.

Or, to put it more succinctly: Would businesses bother using the Internet?

In the context of the mid-1990s, this was a research-worthy question. We have a ton of hindsight, and a generation of I-O trainees, who may scratch their heads at why it was ever asked. At the risk of sounding all, "Stay off my lawn!" I have to say that the times, they have a-changed. There was life before the Internet, before we could buy almost anything we wanted online, before we could stream movies and tv shows or download books, before we could download articles and had to go to a big building called a "library," before we had laptops and tablets and smartphones. So, yes. Part of my funding in grad school involved asking whether this innovative "Internet" technology would interest organizations (Mullins, Kozlowski, Schmitt, & Howell, 2008, that should take the paper in a trial of "9" in the "as cited by" on Google Scholar!).

I've always been interested in online communities, and the opportunity to be the first editor of this online-only incarnation of *TIP* was more than I could pass up. I've posted a couple of editor's blogs on my SIOP and an [intro-ductory video](), so I'll try not to restate too much, but the important thing is this: I know a fraction of the potential that the move to online publishing offers us. It's more immediate, it's easier to update, it's more interactive, and it changes the act of reading from a static behavior into what is potentially an interface with a larger community.

My two "buzz-words" for the coming 3 years are "content" and "community." I want to provide high-quality, relevant, interesting content, and I want *TIP* to integrate with and become even more integral to the larger SIOP community. You'll see a lot of links within the pages of *TIP*, and many of them go to my SIOP (particularly the forums and the library). This is our online community, we have an amazing community already. With all the online resources SIOP has to offer, I can only see that improving.

And we won't need a retrospective study of archival data to tell us that, either.

On, then, to the content!

1 July 2012 Volume 61 Issue 1

Ah, the blue and the silver. One big wall of text on the page. Why blue and silver? Because at SIOP 2013, I was asked what color scheme I wanted for *TIP*, and I looked down at my tie.

"Blue and silver."

Turns out, I'm somewhat aesthetically impaired. The redesign of *TIP's* aesthetics to their current form was courtesy of Jen Baker and the amazing, wonderful people who work in the SIOP AO. Just about anything that looks good in *TIP* is because of Jen; anything that looks questionable was probably me. (I'll take either the credit or the blame for the two-column format, by the by. I still think that it's better for reading on mobile devices, but I also understand that it's not for everyone.)

And context is something we are decidedly not short on. We start with a message from our President, **Tammy Allen**, in which she outlines major things that are going on in SIOP and encourages all of us to get involved. Then, in keeping with the general idea of welcoming you to TIP's online format, we're featuring an article by **Anita Blanchard** on virtual communities in I-O. Part III review and part call-to-action, Anita's paper lays out some of the key things that we know and that we need to know, as we increasingly find ourselves interacting with virtual versions of one another. I'm particularly happy with this paper given how well it dovetails with the increasing emphasis on my SIOP because there are important lessons we can learn about how to make the most out of the online form of the SIOP community. (It's also worth noting that my SIOP is a great "sandbox" for observing the development of an online community!)

Other feature articles include the eagerly anticipated salary survey report (short form, of course; the longer form will be available for download from the SIOP.org web page shortly after you receive TIP) by **Chara Khanna, Gina Medsker,** and **Ryan Ginter. Mengqiao Liu, Nathan Bowling, Jason Huang,** and **Tiana Kent** offer up insights into how SIOP members feel about insufficient effort responding (IER) in surveys and how much of a threat we perceive it to be. They end with a call for commentary, highlighting several questions that they're interested in hearing more about from you, so head over to the my SIOP forums (you'll need to log in) and share your thoughts! In fact, just in general, it's important to mention that the my SIOP forums now have a special section devoted to TIP, and we encourage you to post comments, ask questions, and just generally continue the conversation begun by our various features and editorials.

We've also got the fourth part of the SIOP Graduate Program Benchmarking survey, by **Rob Tett, Cameron Brown, Benjamin Walser,** and **Scott Tonidandel**; the results of an interesting study by **Amanda Steiner** and **George Yancey** on what employers are looking for when they hire an I-O psychologist; a celebration of the 40th "birthday" of competencies by **Thomas Stetz**; and a description of an interesting classroom exercise that turned into quite the learning opportunity by **Jesse Michel**. All great stuff!

TIP's editorial columns have seen some changes, including the introduction of two new columns and the re-branding of another. **The Modern App,** written by **Nikki Blacksmith** and **Tiffany Poeppelman,** is a new column devoted to social media and technology in the workplace, and fell like a natural fit for a TIP. Also new is a column on **Organizational Neuroscience** (ON) by **M. K. Ward** and **Bill Becker**. Following on the heels of their "standing room only" symposium in Houston, M. K. and Bill will be highlighting research and application opportunities not only in ON, but in areas related to interdisciplinary research in general. As you'll see from **Autumn Krauss**'s APA program report later in the issue, research that crosses divisional boundaries is a major theme right now.

M. K.'s former co-chairs for the **Spotlight on Global** I-O column, **Lori Foster Thompson** and **Alex Gloss,** have given the reins of well-respected former columnist **Stuart Carr** and combined the **Quo Vadis** column he developed with their own global I-O focus to bring us the new **Spotlight on Humanitarian Work Psychology** editorial column. They are joined by **Ishbel McWha,** the chairperson of the Global Organization for Humanitarian Work Psychology, and for their first (new) column offer a fascinating interview with Governor Scott McCallum.

"Wait, Morrie, isn't that a lot of changes?" Well, anonymous reader/narrative device, not really. You see, most of the columns and columnists you know and love are still here and still providing great content and updates. In the **Practitioners' Forum, Tracy Kantrowitz** updates us on the Professional Practice Committee's activities, and **Michael Trusty** shares information about the development of career paths for I-O psychologists. In **The Academics' Forum, Tori Culbertson** shares information about the "SIOP Wikipedia Initiative," which is a call for us to take ownership of I-O related information on Wikipedia. The way I see it, Wikipedia isn't going away, so taking control of our "message" on it offers some great pedagogical and branding opportunities!

In **The International Practice Form, Alex Alonso** and **Mo Wang** introduce us to Drs. James and Alison Elying, who share their insights and expertise on issues related to emerging markets. **Marcus Dickson**, in **Max Classroom Capacity**, addresses the paucity of I-O classes offered as part of most undergraduate curricula and points out the high value-added of I-O course work even for students who never go on to graduate study. Given where psychology undergraduates tend to end up, job wise, the data I've seen suggest that he's right. My department chair likes to comment that, "Most of our psychology majors are actually undeclared business majors," given their employment trends, so we really ought to be advocating for more I-O classes. Instead, as Tammy Allen points out, I-O is often an afterthought and may not even be included in introductory psychology textbooks.

The Industrial-Organizational Psychologist 1

I learned a lot about myself and my communication style, through working with various SIOP members over the past 3 years. I have also goofed a few times, but I'd like to think that I learned from those mistakes and that digital *TIP* has gotten better as we've received feedback. SIOP let me learn, and grow. It will do that for you, too.

*SIOP will help you refine your "personal brand."* I'd like to thank **Tiffany Poeppelman** and **Nikki Blacksmith** for their 2014 paper on personal branding. Being aware of my personal brand and its associated digital footprint was never far from my mind, and I'm happy to say that I have seen a change over the past 3 years.

I mean, before I became editor of *TIP*, when I ego-searched my name on Google, the Wookieepedia entry about me was the first thing that came up.[1] Now it's down to fourth. Well, and third.

Hey. It's progress, right? SIOP did that for me.

*SIOP will expand your view of our field.* I knew that I-Os were doing a lot of interesting things, but I truly had no idea how interesting, or how far-reaching, some of the initiatives our members were engaged in actually could be. **Lori Foster, Alexander Gloss, John Scott, Deborah Rupp, Ashley Hoffman**, and many others have profoundly affected me. It is not

hyperbole to say that learning about humanitarian work psychology and what the SIOP UN team is doing has changed the way I see myself and our profession. I-Os do so many things that do so much good that I am uncharacteristically short on words.

Which is ironic, given how long this column is getting. So, let me leave you with a few final observations about what SIOP will do for you, o' future editor, or person who might be considering applying for the editorship, or family member who will read anything I write. (Hi, Wife!)

SIOP will make you laugh, and make you think.[2]

SIOP will give you the ear of Important People (not just editors!), and will also put you in their line of sight.

SIOP will force you to decide what is important to you, and will give you the chance to learn and act on what is important to several thousand of your colleagues.

SIOP will build you up, support you, stress you out, and trust that you will show good judgment. SIOP will respect you (provided, of course, that you respect SIOP), take you out of your comfort zone, and help you recognize that your "comfort zone" was way, way smaller than it needed to be. SIOP will sometimes inspire you, sometimes frustrate you, and often do both at the same time.[3] SIOP will remind you of all the reasons you got into I-O in the first place, of all the ideas you used to play around with, of all the decisions you made about where you would focus your attention, and of how much you've had a chance to do by virtue of getting involved, and will make you wonder what comes next.

SIOP will make you work but will remind you of that old saw about how people who really love their jobs never have to work a day in their lives, which has almost always been the case for me over the past 3 years.

SIOP will show you that it is not just a collection of members: It is an organization with phenomenal leadership and a dedicated, talented, hard-working staff. It is all of us, working to build science for a smarter workplace.

SIOP will do all those things for you and dozens more that I won't even try to fit into this column.

But SIOP will not mow your lawn.

***

And now, the content!

We start with President **Steve Kozlowski**'s final presidential column, in which he discusses a number of important topics, the most important being the upcoming retirement of SIOP Executive Director Dave Nershi. It's a good thing SIOP has so many amazing individuals skilled in selection, because finding someone to fill Dave's shoes is a daunting task indeed! Thank you to Steve, for his leadership over

the past year, and Dave, for his leadership for much longer.

Our editorial columns begin with a new offering from **Mark Poteet, Lynda Zugec,** and **J. Craig Wallace**. This new column has been in the works for several months and aims to continue great work done over the past few years building bridges—this time, the perpetual bridge between science and practice. I urge all of our readers to not only check out this exciting new column but to think about how you can contribute to it in future issues!

In The I-Opener, **Steven Toaddy** welcomes guest co-author **Olivia Reinecke** and together they offer fascinating thoughts on the future of I-O. **Allie Gabriel**, in The Academics' Forum, gives her insights on the many benefits of advising doctoral students, and in Max. Classroom Capacity **Loren Naidoo** shares lessons about online teaching.

**Steve Discont, Craig Russell, Daniel Gandara,** and **Katina Sawyer** offer up a great look into LGB issues at work, with more to come in future issues. Our TIP-TOPics team (**Grace Ewles, Thomas Sasso,** and **Jessica Sorenson**) encourage us to think globally, and in Organizational Neuroscience we go from the globally big to the microscopically small, as **M.K. Ward,** new *TIP* team member **Susan Zhu,** and **Bill Becker** offer a primer on neurotechnology in the form of an interview with Stephanie Korszen.

In the Spotlight on Humanitarian Work Psychology, **Ashley Hoffman** reminds us that #thispsychmajor does an awful lot of work and highlights several important HWP-related initiatives. The Practitioner Forum this issue comes courtesy of **Matthew Minton**, who describes the need for and development of a business acumen competency model by SIOP's Professional Practice Committee. Then, in the International Practice Forum, Lynda Zugec is joined by Peter Zarris and Tim Bednall, who describe the state of organizational psychology in Australia.

**Richard Tonowski** returns to the Legal Front, letting us know about upcoming issues related to pay reporting, and staying inside the beltway, **Seth Kaplan** and Laura Uttley describe the work of SIOP's Government Relations initiatives.

The Modern App's **Nikki Blacksmith** and **Tiffany Poeppelman** offering this issue focuses on the past, present, and future of social media and technology in the workplace. It is also Nikki's last turn as a *TIP* columnist, though Tiffany will be remaining on with a new coauthor (stay tuned for more on that!). Nikki has been great to work with, and I wish her nothing but the best as she pursues the next phase of her career.

**Richard Vosburgh** offers more Practitioner Ponderings, this time taking on the topic of learning and development. **Milt Hakel** returns to the Foundation Spotlight to announce the Schmidt-Hunter Meta-Analysis Award, and in the History Corner, **Jeff Cucina** and **Nathan Bowling** make us all really happy that we don't still have to use punchcards and schedule mainframe time to run our analyses. A lot of us have

no idea how good we have it.
#AbacusTech
#TheseHashtagsMightHaveBeenCool

This issue also brings three Feature articles. The first, from **Ben Porr, Ted Axton, Meredith Ferro,** and **Soner Dumani**, continues the important reporting of the 2015 Practitioner Needs Survey, this time focusing on areas in need of more science and research. Then we have a great piece on mindfulness-based interventions and their application to graduate student strain, courtesy of **Enrique Cabrera-Caban, Rebecca Garden,** Arianna White, and Katelyn Reynoldson. If you're no longer a graduate student, don't let the context dissuade you from reading this article—there's great information here for anyone interested in mindfulness! Then we've got a really interesting and timely paper from **Jonathan Cottrell, Eleni Lobene, Nicholas Martin,** and **Anthony Boyce**, in which they offer an exploration of the personalities of I-O psychologists relative to other professions. There's a lot of interesting work that could build off what is already an interesting paper, and a better understanding of who we are (as the recent series of competency papers helps demonstrate) can only make us more effective as a field.

We then have a number of important reports! First, we've got several related to the Anaheim conference. **Scott Tonidandel** and **Eden King** offer up some conference highlights, then two committees take the stage. SIOP's E&T committee shares a set of "must-see sessions and events for graduate students" (back in my day, we had to figure it out for ourselves—now, get off my lawn!), and the Scientific Affairs Committee gets the word out about the science funding speed mentoring event. Then Zack Horn invites us all to the 2016 SIOP Theme Track, with its focus on using I-O to make a difference on a much broader scale. This ties very nicely to the latest offering from the SIOP-UN team, this time courtesy of Alexander Gloss, Lori Foster, Deborah Rupp, John C. Scott, **Lise Saari, Mathian Osicki, Kristin Charles, Drew Mallory,** and **Dan Maday.**

The APA Program Committee gives us an update on the upcoming Denver convention, and we have an APA Council Representative Report from **Deirdre Knapp,** Lori Foster, **Gary Latham,** and **Georgia Chao.** We then get more information on the SIOP Executive Director search process from the Selection Advisory Committee (**Tammy Allen,** Milt Hakel, **Bill Macey, Fred Oswald, Ann Marie Ryan, Neal Schmitt,** and **Nancy Tippins**), and an update from the Professional Practice Committee courtesy of Mark Poteet.

Wrapping up, we have IOTAs courtesy of **Alyssa LaCava** (also in her final issue!), SIOP Members in the News from **Clif Boutelle** (definitely not his final issue!), and upcoming Conferences and Meetings courtesy of **Marianna Horn**.

And that, as they say, is that.

I have to thank a few people, as I sign off.

First, Jen Baker. Jen makes so much happen within SIOP and has been instrumental to everything good that has happened with *TIP*. I could not have done this without her. Thank you, Jen. I also have to thank **Alex Alonso**, who has been unflagging in his support and advocacy, both for *TIP* and its editor. He consistently helped me keep everything in perspective and helped make this job a damned lot of fun.

Dave Nershi has been an exceptional leader to SIOP and has taught me a lot just through his example. He will certainly be missed when he retires, and we're all better off for his having been at the helm of SIOP. Everyone else in the AO, the reality is, I ought to just list your names because every one of you has been gracious, helpful, and supportive. But the other reality is, I can hear the Oscar music starting to play me off. So thank you to the whole AO, to *TIP's* Editorial Board for your commitment to providing great, member-relevant content, to all of the Committee Chairs and members who have contributed, to everyone who has submitted a feature article, and to everyone who has offered support and feedback on how to make *TIP* better—thank you.[4]

Finally, I hope you will all join me in welcoming *TIP's* new editor, Tara Behrend! Tara is fantastic, has a fresh vision and exciting ideas, and I'm looking forward to TIP's continued evolution under her leadership. I've seen some of what she's planning and know that we're all in for great things.

See you at SIOP!

**Notes**

[1] I have been informed that having my own Wookieepedia entry does not, in fact, qualify me for Fellow status and that I need to stop trying to "Jedi mind trick" members of the SIOP EB.

[2] A friend who reviewed the column for me pointed out that I was only one element away from the centerpiece of Jim Valvano's famous ESPY acceptance speech for the first Arthur Ashe Courage and Humanitarian Award, wherein he said, "If you laugh, you think and you cry, that's a full day." The reference wasn't intentional (and SIOP has not, in fact, made me cry), but once I had it pointed out to me, my inner academician felt obligated to include a reference note all the same.

[3] It's a lot like life that way.

[4] And my wife, of course. Always.

Contents | Features | Editorials | Reports | my.SIOP

# Testing Simplified

**THE CONTENT YOU NEED. THE TECHNOLOGY YOU CRAVE.**

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*This is the first offering of a new* TIP *column. The column is contextualized within the current SIOP landscape. Then, the results of a brief survey conducted to lay the groundwork for the new column are shared, followed by a description of the vision for the column going forward.*

Given that the scientist–practitioner model underpins I-O psychology, the practice of I-O psychology should be based on evidence-based science and practical issues should inform scientific pursuits. However, over the past several years, there has been discussion, research, debate, and activity centered on identifying and/or addressing perceptions of "gaps" between practice and research with the I-O field (e.g., Madigan & Giberson, 2010; Silzer & Cober, 2010; Silzer & Parson, 2012).

In 2008 and 2015, SIOP's Professional Practice Committee (PPC) conducted the Practitioner Needs Survey seeking to better identify perceptions regarding science-practice gaps (Porr, Axton, Ferro, & Dumani, 2016, and Silzer, Cober, Erickson, & Robinson, 2008). The results of these surveys influenced the development of several initiatives currently in place or in development that are focused on providing greater opportunities for science–practice collaboration. Examples include SHRM-SIOP Science of HR Series, EBSCO Research Access, Practitioner Reviewer Database, and the Careers Study.

**"The Bridge"**

What was evident within the findings is the need for more "bridges" to connect science and practice. Indeed, examples of SIOP looking to create bridges between different groups abound. For example, SIOP has sought to develop ways to connect the larger community of I-O psychology academics and practitioners with those outside of the community. The "Building Bridges" initiative is one example. Within that effort, resources were developed that connect individuals online, suggest practices for making I-O connections, and provide materials to educate others about I-O.

Taking further steps to bridge the science and practice gap is also on the top of the agenda for the SIOP leadership. For exam-

ple, in his address at the 2015 Annual Conference, incoming President Steve Kozlowski outlined as one of his goals to promote translational science and evidence-based practice, noting opportunities to "better fuse science findings and evidence-based practice" (Below, 2015; Kozlowski, 2015).

In response to the aforementioned initiatives and results, *TIP* is pleased to announce a new column focused on providing an additional forum for connecting scientific knowledge and research with the effective practice of I-O psychology. This column, entitled "The Bridge: Connecting Science and Practice," was formed with input from multiple committee members and *TIP* editorial staff over the past several months. Within this new column, we intend to (a) extend the "connections" work already being advanced by SIOP, (b) enhance the integration of I-O science and practice, and (c) directly address the call from SIOP President Kozlowski.

### Background Survey Data and the Development of the New Column

To help develop this column, members of the PPC surveyed a small convenience sample of colleagues, both academic and practitioner, to gather their views on several aspects of the science–practice model. Respondents were asked to define and provide an example of effective science–practice collaboration, to identify SIOP efforts that were focused on bridging science and practice and how those could be improved, and to define what makes one a scientist–practitioner in I-O psychology.

We provide a summary of responses to these questions below in the hopes that it will spur some ideas and thought around future contributions to this column as well as larger efforts one may take to bridge science and practice. Respondents defined effective science–practice collaboration in multiple ways, including:

- Using research to guide consulting practices
- Academics and practitioners learning from one another
- Academics and practitioners working together to identify, plan, and conduct research projects relevant and transferable to organizational settings and practitioners ensuring that their work is line with research findings
- Academics and practitioners working together on research projects to address applied problems and inform managers about research-based best practices
- A reciprocal relationship where practitioners and scientists share information and inform one another about research needs and/or findings; for example,
  - Sharing of best practices, research, trends, and data
  - Journals with combined research rigor and applied focus
  - Having outlets for sharing research and practice-based findings across with different practitioners and academics
  - A feedback loop whereby practitioners provide input to academics on workplace issues or research needs that they are able to address

in a more thorough and robust manner, and academics communicate research findings via top journals and popular press
- Joint research in applied settings and articles written in easy to consume language
- Having up-to-date knowledge of research findings and their implications and how those can be applied to less-than-ideal settings to achieve valued outcomes
- Balance of scientific rigor and data-informed approaches with practical application to real world business issues when working with clients

Consistent across the definitions of effective collaboration were the themes of two-way communication between academics and practitioners, sharing of information (e.g., research findings; research needs), working together to conduct research and resolve applied issues, and opportunities in using research to guide practice and practice to help guide research.

Although a complete list of effective science–practice collaboration examples go beyond the scope of this article, it was noted that the provided examples mirrored these definitions well. We describe briefly a few examples below in order that they may help stir readers' ideas and thoughts about contributions to future articles:

- Developing and implementing an organization intervention while also collecting data to address an important research question
- Working with university faculty and students to help design and conduct I-O processes and tools
- Working directly with an organization to conduct research and share findings on current organizational problems
- Developing research ideas from gathering leaders' work experiences
- Academic and practitioner working together to conduct research and share data
- Academic using a different subject population to study hypotheses and research findings that had been observed in research conducted within an organization
- Using best-practice, evidence-based approaches to developing I-O tools and systems within a university setting
- Organizations using I-O tools that were based on research conducted or facilitated by consulting firms
- Academics and practitioners working together on SIOP committees
- Organizations providing data that can be used for research and publications as well as developing interventions
- Leveraging existing research to guide development of I-O tools and products
- Having dedicated resources to provide thought leadership and best practice guidance for product or project development
- Using internships that provide both formal education and practical experience and help practitioners find new talent
- Seeking assistance from an academic with expertise in a specific, relevant area

SIOP-related programs or efforts that were identified as focused on further bridging science and practice included conference workshops and presentations, annual grants that encourage partnership, new registries, having academics and practitioners work on the same committees (e.g., review committee), helping to facilitate more practitioner journal reviewers, branding initiatives, publications such as *TIP* and the *IOP Perspectives on Science and Practice,* webinars and white papers, and local I-O groups. A few respondents indicated they were not aware of existing programs or efforts, which potentially points to an opportunity to communicate more about the efforts being made, possibly by highlighting some of these efforts within this column.

Indeed, when asked for ways in which to improve efforts to enhance science–practice collaboration, suggestions focused on elements of visibility, resources, education, and communication, such as:

- Providing resources such as conference session and workshops, dedicated journals, outlets for practitioner-focused findings, and research funding that encourage effective practice–science collaboration
- Increasing the visibility and advertising of the work being done within the popular press and SIOP (e.g., more visibility on white papers; brochures or short papers on I-O topics to be shared with businesses)
- Educating business professionals/practitioners on the value of research, educating researchers on ways in which to "sell" research ideas to businesses, and providing more practical training to future I-Os
- Enhancing opportunities to share information and encourage communications between practitioners and academics (e.g., registries that provide information about researching being done and available datasets; practitioners sharing key research topics with academics; forums that connect individuals with common interests)

In terms of defining the roles of "scientist," "practitioner," and, most salient, "scientist–practitioner," results were in general not surprising. Respondents were consistent in identifying that a scientist is closely tied to rigorous research activities and utilizes the scientific method to understand human behavior in the workplace. Also notable is a common understanding that a scientist's work is published in journals as a method to share with the larger audience. With regard to practitioners, even though there was recognition that the roles practitioners take on are quite varied, the underlying understanding is that a practitioner applies I-O psychology to the workplace in some way. There was also recognition among some respondents that practitioners require a more expansive knowledge of the other functions within an organization and likely interact in a world where they may not be fully appreciated or understood.

Interestingly, there was a bit of disparity in respondents' definitions of a scientist–

practitioner. Some described this role from the perspective of practitioners who study and use the scientific method, psychological principles of human behavior in the workplace, research and scientific findings, and evidence-based practices to provide services or products that help resolve business challenges or achieve business goals. Others defined the role more in terms of performing both research and practice roles, such as balancing both sides to deliver sound I-O work, contributing to research while practicing delivery and execution, helping to meet workplace challenges while using empirical research to study the effectiveness of applications, and conducting scientifically driven research to create products and services. Some noted the practical challenges in staying involved in both science and practice arenas, such as limited time and different reward systems. A few respondents articulated the role from the perspective of a scientist who understands the practical significance of research, studies important applied issues and workplace practices, and examines whether research findings work in organizational settings.

Overall, it is encouraging that there are slightly different views on what makes for a scientist–practitioner, as this provides more degrees of freedom for I-O psychologists to live the science–practice model and more room for what is considered good science–practice collaboration. Although no one definition emerged, the common theme that appears to determine a "scientist–practitioner" can be loosely construed as someone who is "doing something with research" and also "doing something in practice." It is in the "something" that we are interested. It is the "something" that we want to encourage. It is the "something" that we hope will shape the content of future contributions to this column.

**About "The Bridge" Column**

The column will feature a variety of different types of articles, depending on the specific authors' preferences and the focal topics. For example, we envision as possible types of articles:

- A question-and-answer written dialogue between an academic and a practitioner highlighting, for example, what is happening in academia that could be put into practice and what is happening in practice that could be further investigated with more research
- A case study highlighting the effective practice of science, for example, a recent practice-based issue provided by a practitioner, highlighting evidence-based solutions that were utilized, the impact or implications of those solutions, and potential recommendations or requests for more research
- A review of a key topic/area of interest to I-O psychology (e.g., employee engagement), presented from both the practitioner and academic perspectives, highlighting areas where science and practice converge and diverge and pointing to possible areas for further research or practice

- A description of a difficult challenge faced by a practitioner with a request for assistance, followed by a summary of scientific, evidence-based solutions that could be used for the challenge, provided by an academic or researcher
- A summary of the latest, cutting-edge research findings, followed by a description of how those findings can be implemented in practice generated by both academics and practitioners
- A list of emerging trends, issues, and challenges being experienced by practitioners (e.g., top five requests of clients), accompanied with specific research questions or agendas that could be pursued to address such trends and issues

There are several potential benefits to the new column. In general, it can help facilitate additional learning and knowledge transfer to encourage sound, evidence-based practice. It can provide academics with an opportunity to discuss the potential and/or realized practical implications of their research, as well as learn about cutting-edge practice issues or questions that could inform new research programs or studies. For practitioners, it provides opportunities to learn about the latest research findings that could prompt new techniques, solutions, or services that would benefit the external client community. It also provides practitioners with an opportunity to highlight key practice issues, challenges, trends, and so on that may benefit from additional research. Overall, this column can be one more step toward ensuring a high level of science–practice collaboration!

**How the Column Will Work**

The *TIP* Editorial Board will have oversight and review responsibility for the new column. Members of the PPC will work with the Scientific Affairs Committee (SAC) to identify content areas and format, secure authors and column participants, and assist with and review members' contributions to the column. The column will run for one annual publication cycle (e.g., four issues) after which it will be evaluated and improvements/changes made should it be continued.

**How You Can Contribute**

This new column will not be written solely by PPC, SAC, or *TIP* members – rather, the role of these committees is focused on support and guidance for external authors. The academic and practitioner members of SIOP will be providers of input for the column, reflecting a true grassroots, collaborative effort to further connect science with practice. PPC and SAC members will actively recruit column contributors, but we invite interested potential contributors to contact us directly with ideas for columns following the article types listed above. If you are interested in contributing, please contact either Lynda (lynda.zugec@theworkforce-consultants.com) or Craig (craig.wallace@okstate.edu).

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The I-Opener

# We Feel a Change Comin' On: I-O's Rôle in the Future of Work

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We in I-O are fairly sporting when it comes to discussing the ambiguities and contradictions and inconsistencies associated with the nuances of human behavior in the workplace—cheers to us. We seem to falter, though, when it comes to talking about the future: the future of work, of organizations, of SIOP, of our own jobs. Our narratives become jumbled; we start talking past each other, focusing on different criteria, making different assumptions. Our background in science doesn't prepare us to have meaningful conversations about speculation, prophecy, conjecture. This may be a point to our credit on most days, but it will not serve us if and when the world changes and we are caught off guard and unprepared.

Hence the focus for this edition of the I-Opener: Where is the world of work going and where will we fit in it? The discussion below is imperfect: It represents a single narrative among many possible narratives, a few perspectives among a myriad, many questionable assumptions. We simplified and filtered the prophecies; we asked leading and targeted questions; we, to some extent, knew what we were going to write before we began interviewing experts.

But this serves our purpose adequately. We want to start SIOP's membership down this path of thought—and the more varied the conclusions at which members arrive, the better. We want to reveal the changes that are being anticipated. Instead of simply wondering at the forward march of technology, let's start thinking (and talking) about what this means for us, not in the narrow sense of job security and personal leisure time but in terms of how I-O psychology will adapt to continue to serve humanity in the coming decades.[1]

## What: The (Possible) Brave New World

A continual influx of new technology has become rather commonplace these days, and most of us are comfortable with and even dependent upon the rôle technology has assumed in our lives, but what about its rôle in our work? How and to

what extent is technology improving the human work experience? How and at what point will technology become dangerous? Dangerous to whom or to what? Questions such as these are at the forefront of our field's development, and the answers will transform I-O psychology as we know it.

Upon reading the preceding paragraph, one is likely to consider one of a few categories of technologies: telework, collaborative cloud services, and automation. "Telework" captures a variety of (in this case electronic) technologies that allow humans to better coördinate with each other in their work activities—and has siblings in the cloud in the form of electronic workflow-management suites, collaborative-document services, shared calendars. These technologies have their benefits and pitfalls and are—especially telework—the subject of scrutiny by our field.[2] Important, but not the focus of this column at present; let's look at automation instead.

Sigh. This, uh, this is not an easy topic to tackle. The narrative that has grown around it has elements of Luddism and postscarcity economics and (perhaps not unfounded) fear tied up in it. Again, we're capturing the path of a single flake in a blizzard; a Google search will get the interested reader into more discussion on this topic than can be reasonably taken in. Our first taste was a short YouTube documentary by C.G.P. Grey (2014) entitled *Humans Need Not Apply.*[3] As its title suggests, the documentary asserts that automation poses a very real threat to the need for human work. According to Grey (2014), while automation may not pose an immediate risk to all humans, it will occur "in large enough numbers and soon enough that it's going to be a huge problem if we're not prepared. And we're *not* prepared."

*Humans Need Not Apply* certainly sends a powerful message, but it left us with more questions than answers. Just how unprepared are we? If automation really is a threat to human work, what exactly are we up against? More deeply, is "human work" something that we should defend or is it a necessary evil that we have tolerated to this point? Automation has already demonstrated its power to significantly alter how (or *if*) humans work—look to Google's self-driving car[4] and IBM's Watson[5]—so this is not just some fanciful far-future discussion. As I-O psychologists, we need start considering how it might transform our field, both ideologically and in practice.

In an attempt to cut through the overabundance of automation information available online, we reached out to Marshall Brain. Best known as the founder of *How Stuff Works* and more recently for his *Robotic Nation* essay series, Brain is well versed in the development of artificial intelligence, what he calls the "second intelligent species." Echoing *Humans Need Not Apply,* Brain explained that, although humans are currently the only "math-wielding, language-using, space-traveling intelligences," we won't be alone for much longer. The second intelligent species is well on its way and is no longer merely a figment of a mad scientist's futuristic imagination. IBM's Watson is an example of this type of species, and it is just a primitive form. So what's the big deal? This second intelligent

species has (and will continue to develop) the capacity to compete with the human species, especially in the context of work; and in Brain's view, "humans, generally speaking, are not up to the challenge."

After this conversation, we were no longer interested in debating whether the predictions offered by Grey (2014) and Brain were plausible. For the sake of the article's overarching purpose—a pursuit of answers—we made a deliberate decision to assume that the "threat" automation poses to human employment is real. This assumption will be implicit through the remainder of this article.

### Why: The (Debatable) Broader Purpose of I-O Psychology

So, automation is coming. Now what? We learned from Grey (2014) and Brain that automation could be bad news for the employed population, but would it really be so awful if no one had to work? According to Dr. David L. Blustein, who specializes in the psychology of working and vocational psychology, *yes!*

Blustein was quick to point out that, so far, technology has largely *enhanced* our work lives; our Skype interview, for example, wouldn't have been possible without technology. But when technology replaces the need for human work, the human species is in trouble. Why? Simply put, humans need work. As Blustein explained, work satisfies our "fundamental need to contribute, collaborate, and create." What happens when we can't satisfy this need? Recent meta-analytic findings indicate that those who are unemployed, especially long-term, experience lower levels of mental health (i.e., higher levels of anxiety, depression, distress, and psychosomatic symptoms and lower levels of subjective well-being and self-esteem). Even worse, these negative effects have remained stable for the last 30 years, suggesting that society has yet to adapt to high rates of unemployment (Paul & Moser, 2009[6]). In Blustein's words, "Work is essential for mental health. Work is essential for the welfare of our communities."

If we take into account Blustein's perspective (and the extensive research upon which it is founded) *and if we make the assumption that we are in this game for the good[7] of humanity*, it becomes clear that we must be mindful of how we integrate technology into our work. Blustein emphasized the need "to develop an active, engaged, compassionate approach to the discussion of the future of work in peoples' lives." Reacting to new technology as it comes (i.e., purchasing the next big thing because it's more efficient and cool) with no consideration for its impact on human work—and subsequently on human well-being—will hurt us in the end. As we continue to explore this topic, the need for our species to take a proactive approach regarding automation in the workplace becomes more and more apparent.

Ah, but this is all the pedestrian discussion that you've likely heard before: *Beware technology*, *oh no the robots are coming*, *hide your kids, hide your jobs*. But of course we are not pedestrian; we are SIOP. We have a job to do. So given that we sel-

dom pull the strings regarding the integration of technology into the world of work, the policies that our governments may put into place to protect work[8] and the social-media campaigns intended to take down the artificial intelligences are not for us. Instead, let's start with our assumption about the onward march of automation and simulate where that will take us in I-O in the next, oh, quarter century or so.

**How: The (Possible) Road Ahead**

With much gratitude to Brain and Blustein, we turned our eye inward. What will *we* be doing in the early-middle 21st century? It's possible that our major I-side tools such as WA, selection, and training may become obsolete. First, bots[9] will be able to perform these tasks better and faster than I-Os. Second, when the second intelligent species is doing most of the work, there won't be a need for anyone to select and train them. They will build and train themselves, not as a species but as individuals, as they already do.[10] In the short run, we will be providing services in a different context; in the long run, we may be serving a humanity with a great deal of time on its hands. So how, precisely, will I-O operate?

We interviewed Dr. Anthony S. Boyce (consultant and leader of Research and Innovation for the Assessment and Leadership-Development practice at Aon Hewitt) with precisely these questions in mind. We framed our discussion around two points in time: within the next fiv5e to 10 years, and 15 to 20 years in the future. Boyce thinks we'll still be hiring humans in the next 5 to 10 years but that our selection tools will look very different. Rather than revolving around assessment alone, Boyce envisions selection as a more integrated process, pulling in big data from applicants' social media activity and other online behavior (with the aid of—you guessed it—our digital progeny).

With these big data, organizations may become less concerned about exactly what is being measured and why and may become more concerned with predictive power. If computer scientists can create algorithms that predict performance without causing adverse impact but also without theory or explanation behind them (i.e., a "black box" selection instrument), I-Os may fall behind. Boyce thinks I-Os can work backwards though, figuring out what these black boxes are measuring and how we can apply these constructs to onboarding, professional development, and other postselection areas. While our "I-side" tool belts may become less relevant in the next 5 to 10 years, Boyce thinks our "O-side" skills will remain vital to organizational success. People will still be making decisions and leading teams, and maybe we have a thing or two to teach bots about running successful organizations[11].

In the more distant future, where perhaps human work is no longer needed, Boyce suggests that I-O psychology could be leveraged to aid humans in finding the leisure activities that will be most fulfilling (Brain and Blustein spoke to this as well); rather than advising on job satisfaction and work engagement, I-O psychologists could use their expertise to promote life satisfaction and engagement with leisure activities.[12]

### Who: Our (Debatable) Responsibility

Boyce weaves a compelling narrative for the future of our field. We don't know how accurate it is (though some of us will find out, I suppose), but it certainly paves the way for what is next for each of us individually. We're not asking you to fight anything or anyone[13]. We are asking you to do exactly 3 things:

- Develop your own model in your head of where the world of work is going in the next 5, 10, 20 years (Internet is probably your best resource here).
- Simulate how you think I-O is going to fit into that model (SIOP is probably your best resource here; work with others, discuss, collaborate).
- Adjust your skillset to proactively accommodate the changing responsibilities that you'll experience in the future (attend and generate content for SIOP's annual conference, take classes, practice).

There is a wave coming. We can probably dig in, let it wash over us and move on without us, and leave us obsolete. We can let it catch us unawares and dash us on the rocks. Instead, let's make sure we're ready to ride it.

#### Notes

[1] This may not be the responsibility of I-O psychology. We know. Calm down.

[2] And others, see http://www.siop.org/tip/july14/pdfs/opener.pdf for a discussion of telework.

[3] https://www.youtube.com/watch?v=7Pq-S557XQU

[4] http://www.google.com/selfdrivingcar/

[5] http://www.ibm.com/smarterplanet/us/en/ibmwatson/

[6] Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior*, *74*(3), 264-282. doi:10.1016/j.jvb.2009.01.001; there's a rich theoretically and empirically grounded conversation going on regarding boundary conditions on the impact of unemployment on well-being—SES, time, market sector, and so on—and we encourage the interested reader to refer to this work for an introduction to this conversation.

[7] Whatever the hell "good" means.

[8] That feels odd to type. It's like writing "save the smallpox" or "end conservation."

[9] The human factors/ergonomics people have much more to say about this, but as you envision the future, try not to think of automation in terms of bipedal ambulatory robots. Think of automated factories and invisible algorithms. Autopilots don't look like they did in the movie *Airplane* and neither will the drivers of autonomous vehicles. Of course, there are bipedal ambulatory robots, but they are somewhat beside the point here. (shrug)

[10] Here we're referring to machine learning. Have fun with that search string.

[11] Stop it. No, of course bots will not be sitting in boardrooms in business attire. Bots are cool. They're going to be in casual clothing.

[12] In short, things may get much more huggy feely and O-side people, such as the second author, will finally win our shadow war against our I-side oppressors.

[13] What he said: http://news.discovery.com/tech/i-for-one-welcome-our-new-computer-overlords.htm

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Academics' Forum

**Allison S. Gabriel**
University of Arizona

# How Advising Doctoral Students Can Be the Greatest Research Gift of All

When I was considering academic positions over 3 years ago (which, by the way, how has it already been 3 years?!), there were so many factors to consider. What was the reputation and atmosphere of the school and department? Was the location going to be nice? Was Mike going to be able to find work? Would I be teaching the types of classes that I wanted to be teaching? Were the tenure requirements reasonable or insane? There were so many things to account for, and so many ways to justify the answers to the aforementioned questions if things didn't quite fit with the expectations I had at the time. However, one aspect of my job search was a big non-negotiable: I wanted to work somewhere that had a PhD program.

I am fortunate to continue to have a very positive working relationship not just with my doctoral advisor (Hi **Jim Diefendorff**!) but with my undergraduate honor's thesis advisor as well (Hi **Alicia Grandey**!), and it is safe to say that both relationships shaped my graduate school experience in an incredibly positive way. At the time of my job search, I couldn't imagine not trying to foster that type of experience for someone else. In essence, working somewhere with a doctoral program was my way of trying to "pay it forward" and give back to someone else the hours (and hours) of guidance and social support that I had received from my mentors. Having now had the opportunity to work with two doctoral students at very different phases of their careers—one as a fourth year student and one as a first year student—I'm not sure I'm the best person to speak on "all the lessons learned" because I still have many, many lessons to go. But, I have seen the incredible value of working with doctoral students, and I hope that they can see the value as well.[1]

Importantly, over the last 3 years I have received a great deal of (sometimes conflicting) advice on how to best manage working with doctoral students. Because I am still figuring this "stuff" out, I figured that other people out in *TIP* land might be trying to figure it out as well. When it came to working with doctoral students, I was generally given two streams of advice: (1) fit my

doctoral student into a project (or projects) I was already working on, or (2) let your doctoral student read within your research area and come up with an idea on his or her own. Initially, it seemed as though these approaches were an "either/or" type of situation, and when I thought of them that way, things seemed to stagnate. In fact, I felt as if I was reading in circles (and they might have felt the same way) or that I was forcing students to be reading or working on something that they weren't intrinsically motivated to pursue. Although there are certainly things that graduate students work on that are less than glamorous and need to be done, I am a firm believer that students need to see how their work—whether it is reading, coding, or creating surveys—fits into the larger research picture, and this tends to serve as my reality check as well. After all, if I just have a student doing busy work, who is that benefiting? What kind of lesson is that teaching? More often than not, the answer was that it was benefiting no one, and it created an experience that was less than fruitful and a divergence from how I was mentored. So, similar to other areas of my academic life, I decided to take a "best of collection" of my own personal experiences, the advice I was given, and the mentor-mentee relationships I admired to determine how I wanted to actually work with my doctoral students. Here is what has worked:

**1. Set a Formal Weekly Meeting Time *and* Encourage Drop-Ins**

Although a weekly meeting may not always be necessary, having a 1–2 hour window blocked out in my Outlook calendar did a couple of important things for me. First, it helped keep me accountable to my doctoral students. If I was having them read 3–4 articles over a given week, I sure had to be reading them as well, and a weekly meeting time kept me on a similar timeframe to make sure we could actually have a productive discussion. Moreover, if I owed my doctoral students something for a project (e.g., a template of a similar survey I had created in the past, contacting someone else in the field for study materials/advice), knowing that we would have a weekly update was incredibly helpful to keep me chugging along on my end. Importantly, once I began meeting weekly with my students, the projects began to flow more fluidly and stay on track. Also, it became a time to chat about ideas that were a hybrid of my own interests *and* theirs, and several of the projects I am currently working on with my past and current students are a function of this type of idea sharing in meetings.

Nevertheless, what I have found to be just as important as weekly meetings are the times when my students have popped in to chat quickly about an idea or an issue they are running into. When I started in academia, I was given sage advice to protect my time, and my time is certainly something I continue to be mindful of. However, when it comes to pop-in meetings with my doctoral students, it has become less of an issue of protecting my time over the last 3 years and more a realization that quick little meetings can mean the difference between a project taking a huge step forward or slowing down its progression. When thinking back on my own graduate school experience, I

remember many times when I would knock on Jim's door to pop in for a few minutes to make sure I was clear on something or to ask if a certain idea made sense. I'll admit that, when I left graduate school, I forgot how frequently I did this, how open Jim was to this practice, and how beneficial it was for my work as a doctoral student. In some ways, I tried to rigidly manage my time so much at the start that these types of quick meetings were viewed as an interruption and not an opportunity. Now, I have loosened up quite a bit, with my door more than open to students who want to pop in, even if sometimes the conversations sidetracks to nonresearch related things. After all, things don't need to be *that* serious all of the time, and more often than not, even when things discussed are a little silly (or just involve hanging out eating some of the candy I have stashed in my office), I find that this type of positive work norm enhances the creativity and comfortableness of our actual research meetings when they happen.

**2. Identify Blended Interests**

Although I've become entrenched in a few specific research areas, I haven't found myself feeling a strong desire to "push" these areas onto any student that I'm working with. Rather, I have found it best to assign readings in an area I'm comfortable in and ask the graduate student I am working with to find articles that he/she is interested in that tend to offer a blend of things we both like. For instance, my first doctoral student (Andrew) had a strong interest in recovery experiences work, which was an area I had never personally pursued but fit within my interest of studying employee well-being. After doing some reading and joint brainstorming, we were able to identify a project merging our interests together, and as we continue to work through the revision process, it remains one of my favorite projects given the organic nature with which it emerged. Importantly, I should note that, when Andrew and I began working together, his research interests were more developed because he was a third year student in the program when we began chatting about this particular idea. However, the same blended approach can be applied, in my opinion, to anyone at any level of their graduate education.

For instance, my current doctoral student (Nitya) started with me during her first semester of graduate school. It may have taken a little longer to identify where our ideas could be blended together, but following the same protocol I outlined above, through readings that we both began picking together, we eventually unearthed a question that (a) fit a project I was currently musing up with a couple of coauthors and (b) could be molded into her own to ensure that she had ownership of the work she was doing. In both scenarios with each doctoral student, in my view at least, the work never seemed forced; rather, we both felt a mutual level of investment, and I'm not sure this would have emerged had I forced a particular project on either of them. (Of course, they could totally disagree with this, but I'll live in my little world where everything is awesome.)

**3. Be Comfortable Making Mistakes**

As many *TIP* readers can attest, the research process—on a good day—can be

incredibly messy. When I first started advising, I placed a ton of pressure on myself to always try and know it all and have everything perfectly together. Yet, trying to maintain this resulted in two major issues. First, it was exhausting. I was too concerned about always knowing the right thing to say and truly believed that it was necessary for me to always have the answers in order to be a good advisor. Second, it was unrealistic not just for me as a person to hold that act up, but also it was an inaccurate preview of what the research process was really like. The reality is that most days when I'm working on research there is a lot of slowly thinking through research questions, reading up about analytic approaches, and, if I'm completely honest, some choice words being said under my breath (that last part may be an understatement; sometimes, it's kind of loud). Also, part of getting the most out of working with doctoral students is being realistic with the entire experience and not just the final paper that makes its way to a conference or a journal. In following research from my friend and colleague **Jennifer Wessel**, I find it important to be my entire authentic self during the research process, and this means showing all of the ups and all of the downs with students I am advising. Sometimes the downs can generate some laughs, even at 11:42pm on a Monday night as you are texting with your doctoral student about making changes to a Qualtrics survey to make sure participants don't click the wrong link and destroy the data collection you have planned to launch in just 3 short days. (Yep – that really happened while writing this article; stay tuned to see if our fix worked.)

**4. Remember–These Are Soon-To-Be Colleagues**

Perhaps the most rewarding piece about mentoring doctoral students in the research process is knowing that, one day, they are no longer going to be students but colleagues that you continue to collaborate with and see at conferences. The reality is, although graduate school feels like forever when you are a student, the time is truly fleeting, and, in some ways, when advising doctoral students, I feel as though time somehow goes even faster. But you get to be a part of so many phenomenal moments as a research advisor: watching your student's first conference presentation, reading the acceptance letter of your student's first publication, hooding your first PhD student (even if you are too short and can't quite reach high enough to get the darn thing over your student's head—sorry, Andrew!)—and these moments are the best part of all.

So, to those out there who are currently mentoring doctoral students, or are hoping to someday, do not be scared about stepping into or fulfilling the role of "research advisor." It could end up being the most rewarding one of all.

**Note**

[1] **Andrew Bennett** and **Nitya Chawla** – thank you for not running for the hills when you were assigned to me.


## Preparing to Teach a Fully Online Class

Recently my department decided to offer our undergraduate Research Methods in Psychology course in a fully online format, and I am slotted to teach the first section in fall 2016. I have never taught an online class before and have mixed feelings about it.

The ostensible (and laudable) goal of offering this class fully online is to serve students who require it to complete their degrees but cannot attend classes in person because they have since started full time jobs or relocated, and so on. As such, this class will be fully online (i.e., no formal in-class meetings) and asynchronous (i.e., no formal real-time interactions between teacher and students). I have received fantastic support from my college to develop the class. I was awarded a year-long teaching fellowship by Baruch's Center for Teaching and Learning to attend their series of workshops designed to support faculty in developing their hybrid/online classes.

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Although I'm excited to learn different skills and try something new, I am concerned about the potential for the fully online class format to undermine the quality of students' education. University administrators often like online classes because they are economical: class sizes can be large and physical space is unnecessary. I also worry that a purely online education will degrade students' social experience, undermining more distal and nuanced outcomes like student professionalism and social networks. At a more granular level, is an online format suitable for research methods, which we teach as a hands-on class in which students (often for the first time) develop and conduct their own psychological research? Will it work if students are unable to interact with each other in real time? Finally, I love the interpersonal aspects of teaching, the relationships one forms with students, and the immediacy of the feedback on students' engagement in class. I wonder how much I will enjoy teaching students whom I may never meet in person!

As a result of these concerns I'm very motivated to figure out how to do the best job I can. As any good I-O psychologist would, I started by looking at what the research literature

has to say about online education. Not surprisingly, there has been considerable research on this issue over the last 3 decades. I will touch on some highlights, but this isn't a formal literature review—hopefully the citations below will provide a helpful preliminary reading list.

Bernard et al.'s (2004) meta-analysis of distance education showed that *asynchronous* online classes produced *superior* achievement outcomes to classroom-based classes, but the effect was in the opposite direction for synchronous online classes. Use of problem-based learning strategies and accessibility to the instructor via e-mail both positively impacted achievement and attitudinal outcomes in asynchronous distance education. However, there was substantial variability in almost all of the effects. Partly this is simply because pedagogy and methodology have large effects on achievement outcomes and vary independent of class format. In addition, the use of technology is often confounded with class format. Does the technology we use matter? Schmid et al. (2014) meta-analyzed the effects of the extent to which various educational technologies were used in post-secondary education. They found small positive effects for technology used to support presentation of information on achievement (e.g., PowerPoint). However, the largest positive effects on achievement occurred for technology that provided search and retrieval support (e.g., electronic databases, hypertext links, search engines) and cognitive support (e.g., wikis, concept maps, spreadsheets). Effectively using these technologies is important in online classes and most online classes make use of at least some of these technologies by necessity. However, these technologies are important in classroom-based classes too.

So, in summary, (a) educational technology does matter but its importance is not limited to online or hybrid class formats, and (b) it would seem that you lose something as an instructor by not being in the room with your students, but these losses are made up for (in asynchronous classes) by benefits arising from students being able to learn on their own time. Part of this latter effect may result from students spending more time on the material in online compared to classroom-based classes, and hybrid formats that combine face-to-face time with increased flexibility may be the most effective (Means, Toyama, Murphy, Bakia, & Jones, 2010). However, I still have questions about the social experience of students in online classes and how to go about designing an online class from scratch.

For some hands-on advice, I e-mailed my colleague **Erin Eatough**, assistant professor in I-O Psychology at Baruch College and the Graduate Center, CUNY. Erin has taught 10 fully online classes and three hybrid classes in psychology and business. She is the chair of SIOP's Students and Academia subcommittee of the Visibility Committee, a teaching and learning faculty fellow at Baruch College, and an active peer reviewer for Quality Matters.

*Loren: Thanks for talking with me Erin. What advice do you have for someone preparing an online class for the first time?*
*Erin*: Well, I think the best piece of advice I

can offer is not to underestimate the importance of the design and structure of your course. For example, some questions to ask yourself might be: Will you have a synchronous or asynchronous approach? If asynchronous, how will you deliver your lecture material? Will you have weekly units? How long will the material in each unit be available for? Alternatively, will you have modules that span several weeks? What are the built-in structural components that will require student engagement and when will these activities take place (such as required discussion board postings)? These kinds of decisions are important on the front end to ensure you have the appropriate resources available to execute your plan (e.g. Do you have a synchronous tool available for live lecture? What kinds of student-engagement formats does the learning management system you are using support?) and to better explain to your students from day one how this class is going to work. I think in online learning, having a clear, organized structure to the course helps students know what to expect, and this expectation management is crucial for aiding students in meeting the self-regulation demands in these kinds of formats. There are many resources to help faculty designing a new online course (or converting an in-person course to an online course), such as those offered by the nonprofit organization Quality Matters. Alternatively, many institutions actually have in house instructional designers for this very purpose! Usually, these individuals are part of the team that manages whatever learning management platform your institution uses (such as Blackboard). It might just be a matter of sending an email to figure out who this person is at your own institution.

*Loren*: So the timing of class events is really important, and rather than being imposed by the class meeting schedule in traditional classes, it's something the instructor has to determine. That's really interesting. What do you like most about online instruction?

*Erin*: I like the most the fact that online courses break down sociodemographic barriers that prevent students from having access to education. Many nontraditional students, those from disadvantaged backgrounds, and those with numerous competing demands such as childcare or employment are often only able to enroll in fully online courses because of the flexibility associated with online administration. Furthermore, offering courses online allows students from less accessible geographical locations or with transportation barriers to have access. Especially for nontraditional students, I have personally found that online courses can offer a less intimidating environment than the brick-and-mortar classroom setting. In fact, student-to-student and student-to-instructor interaction can actually increase in an online setting because everyone (regardless of personality, native language, comfort level with the material, etc.) has equal opportunity to voice opinions and perspectives (for example in an online discussion forum). Further, for students who might otherwise have anxiety about participation, such as ESL students, online formats offer students time to think longer about written or verbal communications and share their comments publicly when they feel ready, reducing self-consciousness about participation. I feel it allows me to reach students who might other-

wise not be able to register, and this fact is extremely rewarding for me.

*Loren*: What do you like *least* about it?

*Erin*: I like least the very thing that makes online classes possible: the technology. Well, I should say the technology *quirks* that for a person like me, who is of average technological capability (by my estimation), will drive you nuts. For example, dealing with long wait times in rendering video files, errors in uploading that must be done and redone until the magical Internet fairy offers her blessing, hidden toggles in Blackboard that make things not appear when they are supposed to appear, those kinds of things. Dealing with the technology involved takes a lot of time. Especially the first time. When I first offered Intro to Psychology online, I estimated it took 3x longer for me than offering it in person. Of course, after that hurdle, the time investment decreases and the learning curve flattens out a bit, but I would still say what I like least is not knowing the shortcut keystroke to just *make it happen*!

*Loren*: I think I have had some of the same frustrations with Blackboard as you have! One last question Erin—do you find it more difficult to connect with students on a personal level online compared to in person, and how much do you think this matters?

*Erin*: Actually, I do not find it any more difficult to connect on an intellectual or personal level. Participation is a major and mandatory part of my courses and because the format is less intimidating than raising your hand in a classroom, I actually feel I get to know each student better than I do in an in-person setting where some students may be shy and not speak up much throughout the whole semester. What's missing, though, is knowing them by face. If I passed one of my students on the street, I might not recognize them, which is somewhat of an odd feeling. When walking through campus, people may recognize me, but I don't recognize them. Is that the definition of a celebrity? I'll leave that up to you. I do ask each student to upload a picture of themselves (although it is not required), but the learning management system I use makes the photo next to each student's name so small, you need a microscope to see it and yes, I *have* tried left, right, and double clicking (back to technology being a double-edged sword). Some students will take me up on virtual or in person office hours, so in that case I do know them by face. So overall, my answer is that I do not find it difficult to build meaningful relationships with the students and feel in some ways the format fosters a depth of connection I don't always experience in person. Even if I do now have the strange desire to wear oversized sunglasses and get a purse dog.

*Loren*: The heretofore unknown perils of online teaching… Thanks Erin!

Below are a few citations of readings for those interested in learning more.

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## LGB Issues in the Workplace 101

We within the LGBT SIOP committee want to make a difference within the field of industrial-organizational psychology and within SIOP by increasing exposure to the experiences of sexual orientation and gender identity minorities within the realms of research and practice. We believe that one method by which this can occur is through making regular, novel contributions to the literature, by filling preexisting gaps may leave LGBT individuals overlooked. However, we realize that it is also important to educate researchers and practitioners who might not be familiar with the basic issues that LGBT people face.

Educating I-O psychologists on the issues facing lesbian, gay, bisexual, transgender, and queer (LGBTQ) people is of the utmost importance to achieving equality and diversity in the workplace. The need for improved knowledge and understanding of the challenges that LGBT individuals face at work becomes ever more apparent as LGBT rights (or lack thereof) continue to play an ever-pivotal role within current U.S. politics. For instance, it was only with last year's 5-to-4 ruling U.S. Supreme Court ruling that same-sex couples could get married with federal recognition (Obergefell v. Hodges, 2015), thus addressing a multiple decades-long fight for equitable benefits within the workplace (see Bell, Özbilgin, Beauregard, & Sürgevil, 2011; Raeburn, 2004).

In this first part of a two-part series, we will provide TIP readers with the knowledge necessary to have a general understanding of the issues facing lesbian, gay, and bisexual (LGB) people within the workplace. As transgender and genderqueer/nonbinary persons face unique issues and dilemmas from those faced by sexual orientation minorities (e.g., Clarke, Ellis, Peel, & Riggs, 2010), our next article will provide insight into their experiences. In this article, we first provide an understanding of what sexual orientation is and what it means to be a sexual orientation minority. We then explain common challenges LGB individuals face within the workplace, including an in-depth look into wage discrimination that LGB people uniquely face. Finally, we address the legal battles LGB people still grapple with within the United States and propose how we as industrial-organizational psychologists and members of SIOP can help.

## Sexual Orientation and Sexual Orientation Minorities

Before delving into the discussion on common workplace issues and concerns for members of this community, we first need to be clear about what some of the terms mean. Identity groups derive from social identity theory and refer to the collectivities people use to categorize themselves and others (Konrad, 2003). Sexual identity is unique in that membership in this group can be concealed to various degrees, unlike members of other groups, which possess characteristics that cannot be hidden from others such as race, age, gender, and so forth (Chrobot-Mason, Button, & DiClementi, 2001). Sexual identity is an invisible social identity (Clair, Beatty, & Maclean, 2005), which could also describe characteristics like religion, national origin, illness, and social group membership.

According to the American Psychological Association (2008), sexual orientation refers to romantic, emotional, or sexual attraction to other people. Sexual orientation refers to "an enduring pattern of emotional, romantic, and/or sexual attractions to men, women, or both sexes. Sexual orientation also refers to a person's sense of identity based on those attractions, related behaviors, and membership in a community of others who share those attractions" (p. 1). This is often labeled based on the relationship between a person and the people they are attracted to and is defined by the gender identity of both people. For example, a woman who is primarily attracted to other women is a lesbian (L), a man primarily attracted to other men is gay (G), and a woman or man that is attracted to both women and men is bisexual (B).

In general, negative social attitudes toward LGB individuals are referred to as homophobia. The term heterosexism, which refers to the presence of discriminatory policies and hiring and promotion procedures (Lyons, Brenner, & Fassinger, 2005), is regarded as a more appropriate concept (Waldo, 1999). The distinction is important as heterosexism focuses on the normalizing and privileging of heterosexuality and calls attention to the prejudice faced by LGB people.

## Invisible Identities and Workplace Discrimination for LGB Individuals

Between 25% and 66% of LGB employees are estimated to have experienced sexual orientation discrimination at work (Croteau, 1996). Ragins and Cornwell (2001) found within a sample of gay and lesbian professionals that one-third were verbally or physically harassed at work and 12% had left a previous job because of discrimination. In addition, 37% experienced discrimination merely because they were suspected to be gay or lesbian. However, these forms of discrimination can be subtle. A study by Hebl, Foster, Mannix, and Dovidio (2002) found that job applicants who were thought to be gay, although not subject to greater direct discrimination, were treated with greater indirect discrimination than their assumed heterosexual counterparts through the manager's use of more verbally negative language, fewer total words, and by spending less time with candidates in general. Overall, the persistence of LGB

discrimination may be due to continued social stigma associated with being gay, resulting in fear, ostracism, disregard, or even disgust toward LGB individuals at work (Embrick, Walther, & Wickens, 2007).

LGB employees may be aware of the risk for discrimination and decide to remain closeted in order to avoid backlash. Croteau (1996) found fear of coming out was a major concern for LGB employees because the more "out" the employee, the more likely they were to experience discrimination at work. In the same vein, Ragins, Singh, and Cornwell (2007) found that fear of disclosure was positively related to psychological strain for LGB employees and negatively related to attitudes, work environment, and career outcomes. On the other hand, actual disclosure was unrelated to these variables. Thus, gay individuals are aware of the inherent risk in revealing their true identity, encouraging a constant state of identity "self-policing" at work, which may be stressful for LGB individuals to endure (Ragins, 2008).

The experience of invisibility and the impossibility of truly "being" at work may be both mentally and physically harmful for LGB individuals (McDermott, 2006). For example, Ellis and Riggle (1996) found that degree of openness at work was positively related to job satisfaction but negatively related to satisfaction with pay and objective measures of salary. In addition, even in progressive workplaces, LGB individuals may feel that they need to follow a particular script in order to "properly" portray their LGB identity (Williams, Giuffre, & Dellinger, 2009). Finally, even if individuals are out in the workplace and adhere to societal prescriptions for gay performance, they may need to work harder than their heterosexual counterparts in order to demonstrate their worth. For example, Miller, Forest, and Jurik (2003) found in a qualitative study of LGB police officers that many reported feeling the need to go above and beyond the call of duty in order to ensure they would be viewed as equal. Sexuality-based discrimination continues to have a negative effect on LGB employees, even in the face of progressive attempts to create fair and equal workplaces for LGB employees and even when employees are performing as well or better than their counterparts.

**Problems With Compensation Within the LGB Community**

The relationship between any demographic characteristics, including membership in LGB communities, and compensation gets complicated quickly due to definitional issues, correlated predictors, and the absence of experimental/quasi-experimental fixed effect research designs. Definitional issues become clear in deciding whether "compensation" is operationalized as average annual earnings or average hourly wages. For example, the widely reported "gender wage gap" shows average female annual earnings ranging from 78-82% of male earnings, yet this gap shrinks to 87% for average hourly wages. Note, these statistics vary geographically too – Davis (2012) found gender wage gaps varied from 66.7% in Wyoming to 90% in Washington, D.C. Variation in sample composition and "control" variables (e.g., job/career tenure) explained all but 5-7% of the

gender wage gap in a comprehensive Department of Labor report (CONSAD, 2009). One common conclusion is that overt gender discrimination only contributes 5-7% of the gender wage gap. Unfortunately, one could just as easily frame the results in terms of the incremental contribution variables like job tenure make after "controlling" for gender differences. If overt gender discrimination causes women to receive lower wages, career/job tenure, job access, and so on, a more appropriate interpretation is that gender discrimination caused a gender wage gap of at least 5-7% and at most ~20%.

Congress has annually failed to pass the Employment Non-Discrimination Act since it was first introduced in 1994, precluding sexual orientation minorities the protection that other groups receive from overt employment discrimination under the 1963 Equal Pay Act and 1964 Civil Rights Act. Regardless of whether the absence of federal legislation makes overt sexual orientation discrimination more likely than gender discrimination, similar causal ambiguity occurs when examining compensation effects. Sexual orientation earnings data were first systematically reported by Badgett (1995)—BLS and the Census Bureau do not currently track earnings for the LGB communities. With one notable exception, Klawitter's (2015) meta-analysis of 31 studies in this literature since 1995 yielded insights comparable to those found for gender wage differences reported in the CONSAD report—generally speaking, LGB individuals earn less than their heterosexual counterparts. Lesbians remain an unexplained exception to this trend—although gay men earn 11% less, lesbians enjoy a 9% income advantage relative to heterosexual women.

Relatively little attention has been paid to parsing the relative contributions of causal candidates for these gaps, as most attention has focused on the 9% lesbian income advantage. The gay wage gap may simply be due to differential overt discrimination, as Herek (2000) found gay men were generally viewed less favorably than lesbian women. Unfortunately, the vast majority of studies examining "wage gaps" use random effects research designs that preclude strong insights into the relative importance of highly correlated causal antecedents. Grams and Schwab (1984) is one possible exception, where an experimental fixed effect research design showed minimal effects of job gender dominance in job evaluation decisions. Applied psychology has a long tradition of examining the effects of demographic variables on performance evaluations in lab settings (e.g., Hamner, Kim, Baird, & Bigoness, 1974). Insight into the relative contributions made by members of the LGB community combined with other information about personnel selection, performance appraisal, initial wage offers, and merit pay increases will occur when LGB status becomes an independent variable in replications and extensions of some of the more creative lab studies done by applied psychologists.

**Discussion**

LGB people face unique experiences within professional, organizational settings by the sheer fact that they possess a nonheterosexual identity. Evidence shows these

individuals face unique forms of discrimination in the workplace, both through formal and informal means. Despite this, steps can be made to reduce these issues, such as having employee nondiscrimination policies that include sexual orientation, educating employees regarding LGB diversity issues, and more.

Nonetheless, at the time of this column being written, there exists no federal law that prohibits employment discrimination on the grounds of sexual orientation (Workplace Fairness, *n.d.*). Despite the Equal Employment Opportunity Commission ruling that discrimination on the basis of sexual orientation (Baldwin v. Department of Transportation, 2015) should be considered sex discrimination, people can be legally discriminated against on the basis of their sexual orientation in 28 states (Workplace Fairness, *n.d.*).

Industrial-organizational psychologists, either as individuals or within the context of SIOP, can help address the problems that sexual orientation minorities face. By being educated on sexual orientation and LGB issues, we can explore opportunities for individual and organizational change that may uniquely impact these populations where once they were overlooked in the literature. Within professional settings, industrial-organizational psychologists can advocate on behalf of LGB people so that increasing numbers of employers might have LGB supportive workplace climates while also developing evidence-based guides on how best to do so. We as members of SIOP can work together through activism and advocacy to improve management policies, practices, and state and federal laws by educating ourselves on the existing LGB workplace research and by providing our expertise on these issues as they pertain to discrimination, inclusivity, and more.

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# SIOP 2016 ANAHEIM, CA • APRIL 14–16

# Event Schedule

*Schedule subject to change. Last updated March 1, 2016.*

Full registrants of the conference may attend any of the events below for no additional charge, except for where noted. Guests may attend general conference receptions with an additional fee. ***For more info, please visit www.siop.org/conference.***

**$ additional registration fee  * by invitation only  (HA) Hilton Anaheim hotel  (CC) Anaheim Convention Center**

## Wednesday, April 13, 2016

| | |
|---|---|
| 7:15am – 10:30am | Preconference Workshop and Consortia Registration Open *(HA)* |
| 8:00am – 5:00pm | Consortia General and Breakout Sessions (Doctoral*, Masters*, & Junior Faculty) *$ (HA)* |
| 8:30am – 7:30pm | Preconference Workshops and Reception *$ (HA)* |
| 12:00pm – 4:00pm | Exhibitor Set-Up *(CC)* |
| 12:00pm – 8:00pm | General Conference Registration Open *(CC)* |
| 3:00pm – 5:00pm | Placement Center Open *$ (HA)* |
| 5:00pm – 6:00pm | Newcomer Reception *(HA)* |
| 6:00pm – 8:00pm | Welcome Reception, ***presented by CEB*** *(HA)* |
| 8:00pm – 10:00pm | SIOP Foundation Awards Presentation and Dessert Reception, ***presented by CEB*** * *(HA)* |

## Thursday, April 14, 2016

| | |
|---|---|
| 7:00am – 8:30am | Fellows Breakfast* *(HA)* |
| 7:30am – 8:30am | Continental Breakfast, ***presented by Qualtrics*** *(HA)* |
| 7:30am – 6:00pm | Registration Open *(CC)* |
| 8:00am – 5:30pm | Placement Center Open *$ (HA)* |
| **8:30am – 10:00am** | **Opening Plenary Session** *(HA)* |
| 10:00am – 10:30am | Coffee Break *(CC)* |
| 10:00am – 12:30pm | Placement Center Open Houses *$ (HA)* |
| 10:00am – 5:30pm | Exhibit Hall Open *(CC)* |
| **10:30am – 6:00pm** | **Continuous, Concurrent Conference Sessions** *(CC)* |
| 10:30am – 6:00pm | Theme Track *(CC)* |
| 11:30am – 1:00pm | Concession lunches available for purchase *(CC)* |
| 3:00pm – 3:30pm | Coffee Break *(CC)* |
| 6:00pm – 7:00pm | Committee on Ethnic Minority Affairs Social Hour *(HA)* |
| 6:00pm – 7:00pm | International Reception *(HA)* |
| 6:00pm – 8:00pm | Networking Reception & Top Poster Display, ***presented by Pearson VUE*** *(HA)* |

## Friday, April 15, 2016

| | |
|---|---|
| 7:30am – 8:30am | Continental Breakfast, ***presented by Qualtrics*** *(HA)* |
| 8:00am – 5:00pm | Registration Open *(CC)* |
| 8:00am – 5:30pm | Placement Center Open *$ (HA)* |
| **8:00am – 6:00pm** | **Continuous, Concurrent Conference Sessions** *(CC)* |
| 8:00am – 6:00pm | Friday Seminars *$ (CC)* |
| 8:30am – 5:30pm | Exhibit Hall Open *(CC)* |
| 10:00am – 10:30am | Coffee Break *(CC)* |
| 11:30am – 1:00pm | Concession lunches available for purchase *(CC)* |
| 3:00pm – 3:30pm | Coffee Break *(CC)* |
| 5:00pm – 6:30pm | Speed Mentoring - Practitioner and Science Funding *(HA)* |
| 5:30pm – 7:30pm | Exhibitor Tear-Down *(Note: Exhibit Hall is not open on Saturday) (CC)* |
| 6:00pm – 7:00pm | Lesbian, Gay, Bisexual, and Transgender Committee and Allies Social Hour *(HA)* |

## Saturday, April 16, 2016

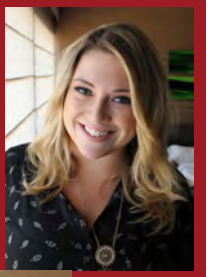
| | |
|---|---|
| 7:00am | Frank Landy 5K Fun Run, ***presented by EB Jacobs and SHAKER*** *$ (begins/ends at HA)* |
| 7:30am – 8:30am | Continental Breakfast, ***presented by Qualtrics*** *(HA)* |
| 8:00am – 12:00pm | Placement Center Open *$ (HA)* |
| 8:00am – 3:00pm | Registration Open *(CC)* |
| **8:00am – 4:30pm** | **Continuous, Concurrent Conference Sessions** *(CC)* |
| 10:00am – 10:30am | Coffee Break, ***presented by IBM Kenexa*** *(CC)* |
| 3:00pm – 3:30pm | Coffee Break, ***presented by Engage2Excel, Inc.*** *(CC)* |
| **4:30pm – 5:30pm** | **Closing Plenary Session, featuring Keynote Address by Laszlo Bock** *(HA)* |
| 6:00pm – 8:00pm | Closing Reception *(HA)* |

## Sunday, April 17, 2016

| | |
|---|---|
| 9:30am – 5:30pm | Temecula Wine Tour *$ (departs from/returns to HA)* |

TIP-Topics for Students

# Beyond Borders: The Importance of Global Experiences in Graduate Student Education

**Grace Ewles**

**Thomas Sasso**

**Jessica Sorenson**

University of Guelph


Since its emergence, industrial-organizational psychology has been required to adapt to market trends, industry demands, and the increasing capabilities of technology in order to remain competitive; a challenge within an increasingly globalized market. The issue of globalization has been a "hot topic" for years, and remains one of the top challenges for related fields, including human resources management (Vorhauser-Smith, 2016) and has been identified by leading I-O practitioners as one of the key future directions for our field (Silzer & Cober, 2010). Moreover, with the increasing need for a cross-cultural understanding of organizational phenomena, those in academia are also recognizing the importance of global considerations in both the design and application of research. As a result, globalization has become a key consideration within our field for both research and practice, and should become formalized within graduate students' learning and experiences. We present this column to encourage more holistic and globally aware graduates in I-O.

For I-O, globalization refers to the shifting marketplace associated with the international expansion of many organizations. Along with this, the definition also includes increased cultural diversity associated with expanding workforces, and the increasing use of technology to support diverse work teams. This growth comes with the need for additional contextual knowledge in order to apply a nuanced approach to managing cultural expectations, preferences, and values in order for our unique expertise to resonate with foreign markets and clients. Moreover, international partnerships provide an opportunity to learn about the unique challenges facing various industries and improve our current practices. Without adequate adaptation, we risk our practices becoming outdated or irrelevant within the growing global market.

In order to promote the continued growth of our field in both research and practical streams, the value of global opportunities must be instilled throughout the graduate experience.

It is important to note that as we discuss the topic of globalization, we must also recognize our underlying assumptions and western-based ideologies that impact the way in which we perceive international relationships and opportunities, a topic that will be considered throughout the article.

**The Role of I-O in the Global Marketplace**

Much of the discussion surrounding globalization has focused on the implications for seasoned practitioners with many large consulting firms emphasizing global growth. For example, the Office of Career Strategy at Yale University highlighted the top consulting firms by industry in 2015 and noted that 22 out of the top 24 management consulting firms emphasize a global presence as a key part of their consulting practices. Within I-O, a global presence requires constantly questioning and testing our own assumptions as a dominantly North American-based discipline to ensure that our practices translate across cultures and result in meaningful, sustainable change. For I-O practitioners, this growth comes with an opportunity to support career development by working with, or managing, diverse teams of professionals in various locations around the world. These opportunities challenge oneself to succeed in an environment that may be outside one's comfort zone, an opportunity that ultimately accelerates knowledge and skill development.

Based on the input from an experienced international consultant, it was recommended that I-O professionals develop skills that allow them to work more effectively on an international scale, specifically, improving the ability to adapt to practical constraints, manage language barriers, and understand cultural norms for doing business. Developing these skills allows you to work in new cultures where challenges are often unanticipated. Along the same lines, developing an understanding of relevant laws and regulations, in addition to the historical and cultural influences, allows practitioners to contextualize organizational issues and adapt practices to the relevant culture. Finally, well-rounded communication and persuasion skills are imperative to understanding client needs and constraints, communicating appropriate solutions, and selling our services and expertise to key decision makers around the world.

Despite the focus on practice, globalization does not only impact practitioners; academics and researchers within I-O also have an opportunity to engage in the global market by participating in diverse research teams or partnerships and sharing findings internationally. Not only does this opportunity allow researchers to improve their impact factor, it also provides the opportunity to question western ideologies and engage in meaningful discussions to challenge deeply held beliefs. Only by having these conversations can we begin to broaden our view, challenge our current approaches, and create meaningful changes to all aspects of our field. In this TIP-TOPics column we attempt to address how we as future researchers, academics, and practitioners can begin to appreciate the learning that stems from globalization and begin preparing for a career in a global market during graduate school.

**Need for International Experiences in Grad School**

With the number of demands facing graduate students, it's likely that many of us have not considered engaging in international relationships or experiences, let alone researched what opportunities are available. However, given the growth of our field internationally, we suggest that you take the time to consider what international experiences could do for your career growth, future prospects, and personal skill development by taking learning beyond textbooks and classrooms. These opportunities allow us to challenge our current ways of thinking and underlying assumptions, including how we conduct research, disseminate findings, and implement practices. When we do not extend our learning internationally, we privilege certain views and knowledge over others in our field, which only serves to divide I-O rather than build a holistic literature. In turn, we potentially miss out on information from sources that do not conform to our backgrounds and our understanding of knowledge.

In addition to challenging our learning, we also encourage graduate students to expand their exposure to the world around them. It is common to talk about the graduate school "bubble," but seldom do we attempt to burst it. Take some time to expose yourself to the world around you to become more informed about global issues (e.g., read an international newspaper or business journal, attend more globally minded conference sessions or a conference in a new country or a different field of study, purposefully seek research from other regions, or read something not published in your native language). Current global issues of food security, discrimination, and the refugee crisis (to name a few) could all benefit from greater involvement of I-O in generating solutions. As we become more aware of the issues around the world, we can find more opportunities to bring our research into global spheres and further help each of us with the question we asked you in our first column: What do you hope to contribute to society? Moreover, by keeping in touch with macro systems we are better able to create meaningful change through both research and practice, allowing I-O to be both proactive as well as reactive and allowing you to set yourself apart in today's competitive market.

***Practical Tips to Increase Your International Exposure in Graduate School***

Each graduate program is unique; some schools have more formal opportunities for international exposure, such as exchanges or research partnerships, while others may provide financial support for students to engage in these experiences on their own. Gaining international experience does not have to be a large amount of work, but we contest that it is an important aspect of your training and development.

*Conferences.* One of the easiest ways for researchers and practitioners to connect with others internationally at conferences is by attending international receptions or talks and participating in available mentoring programs. If you are heading into research, focus on talks specifically geared towards cross-cultural research and make

a point to introduce yourself and connect with speakers that resonate with you. For those in practice, do your research before the conference to see what companies will be present that focus on international opportunities and be sure to network with them during the conference.

International conferences in particular are a fantastic opportunity if your goal is to immerse yourself in research, ideas, and connections from all around the world, as they highlight the unique facets of I-O that can differ from region to region (e.g., some regions prioritize different theories or methodologies, others emphasize a more empirical foundation to research compared to theoretical, etc.). Only by increasing our exposure to these differences can we create a more holistic understanding of I-O and what it can offer globally.

The annual SIOP conference is a fantastic opportunity to make some initial connections and begin that international network. Other major conferences within I-O that promote a global-orientation include the European Association of Work and Organizational Psychology, Academy of Management, the Canadian Psychological Association, and the International Conference on Industrial and Organizational Psychology, among many others.

*Internships and research exchanges***.** As you consider internships or practicums, we encourage you to expand your focus beyond your regional borders. By expanding the scope of your search, you open up opportunities to develop new skills and competencies, as well as diversifying your current abilities through the exploration of new environments. Opportunities exist around the world for graduate students in I-O programs, at both the master's and doctoral levels, for practical work experience. We do caution that there are unique laws and regulations wherever you go with which you will need to comply. Make sure that as you investigate opportunities you also connect with others who have engaged in international experiences in your region of interest to ensure you are well-informed before you finalize any opportunity.

*How to deal with barriers.* One of the potential barriers to taking advantage of some of these opportunities is of course funding. Most departments have allowances for you to use for these reasons, but there are also other ways to help supplement this amount. Be sure to check what bursaries are available through your institution to help support conference travel or international research exchanges. You may also want to look into external scholarships, locally or nationally, as many organizations and countries offer small scholarships or bursaries for international academic exchanges.

Another challenge may be in terms of communicating your desire for international experiences with your supervisor. The key to managing this conversation is to come prepared and emphasize why these opportunities are particularly relevant to your development. Focus on what opportunities there are that you are particularly interested in, how this will impact your timeline, and what knowledge, skills, or abilities you

will develop as a result of participating. The more prepared you are, the better.

If international experiences are something that you are interested in learning more about, we highly encourage you to talk to other graduate students, faculty, and administrative contacts in your program to see what opportunities are available to you. SIOP also has an International Affairs Committee that you can engage with. Be sure to tailor your experiences based on your developmental goals, financial flexibility, and time available. Ultimately, how you incorporate globalization into your graduate training is up to you. In an ever-changing world, we encourage you to take advantage of every opportunity to learn, question, and strengthen your personal and professional skill set. These experiences can only serve to strengthen your personal brand within an increasingly competitive market.

**Article Teaser**

For our next TIP-TOPics article, we will be exploring issues surrounding the health and well-being of I-O graduate students. This topic is particularly important as the discussion of well-being in academic staff continues to rise around the world (e.g., Shaw & Ward, 2014). We hope to explore some of the issues particularly relevant to our readership by surveying students on their ability to manage their personal well-being amidst the demands of graduate school.
For this article **we need your help**: Please complete our survey to help inform the column and be sure to share with your graduate student colleagues in various I-O programs. Through this column we hope to inspire discussions of health and well-being at various institutions and reinforce the notion that education should not come at the expense of personal well-being.

Survey Link:
https://uoguelph.eu.qualtrics.com/SE/?SID=SV_2t5DhejGMZnU2lT

As always, feel free to send us any questions or comments regarding this or any of our columns to jsorenso@uoguelph.ca.

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Organizational Neuroscience

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# A Brief Primer on Neurotechnology in I-O Psychology: A *TIP* Interview With Stephanie Korszen

Neuroscience equipment is expensive and can be intimidating, which in turn discourages many from taking an organizational neuroscience approach to their work. Buying neurotechnologies for your research lab or company doesn't have to be a scary undertaking. Knowledge is power, and just as Consumer Reports helps people buy a range of products, in this issue our conversation aims to support an informed investment in neurotechnologies.

There are many suppliers of neurotechnologies, and wearable technology is a booming new product market. We talked with one neurotechnology supplier, Advanced Brain Monitoring (ABM), to provide an example of considerations to make when purchasing electroencephalography (EEG) equipment. Although we focus on EEG in this issue, Product Engineering Manager Stephanie Korszen from ABM shares advice with us that can be applied to the purchase of other types of neurotechnologies. Furthermore, this is not meant to be a pitch for ABM but rather a general discussion with a company whose product has been successfully used by organizational researchers.

Here's a very brief overview of EEG. (If you're already familiar with EEG, skip ahead to the next paragraph.) EEG measures synchronous electrical activity in large populations of neurons. When neurons respond to excitatory input (e.g., a selection survey), the flow creates a negative charge outside the neuron and a positive charge inside the neuron. This creates a dipole that in turn creates a magnetic field tangential to the direction of the dipole. If numerous dipoles (e.g., millions) are created and oriented in the same direction, then EEG can record their electrical potential from the scalp. It's like trying to hear one person clapping in an adjacent room versus hearing the whole audience clapping. Aspects of the EEG signal recordings are frequency (the number of claps) and amplitude (the decibels

of the clapping sounds). Data analysis of EEG includes frequency-domain analysis and time-domain analysis of event-related potentials. Although there is some distortion due to the skull, EEG has excellent temporal resolution, meaning it can measure brain activity very quickly to give a good estimate of brain activity as it occurs (e.g., Senior, Russell, & Gazzaniga, 2006). Historically, EEG has had poor spatial resolution, but thanks to technological innovations and the ability to couple EEG with other imaging techniques, researchers can capitalize on the strengths of each imaging method and improve spatial resolution.

In this interview, we discuss ways to set up an EEG system, as well as some things to keep in mind while designing a research study that incorporates neuroimaging techniques. We discuss EEG equipment options in terms of neuroscience platforms for developing objective, practical assessments of performance in professional environments.

***What EEG equipment is available on the market?***

The breadth of EEG equipment on the market can seem daunting, ranging from high-density 256 channel systems to single channel wireless devices. A big question for researchers is what's the best system for me? The answer is tied to the main hypothesis that your research aims to test, as well as the outcome measures. The types of analyses that you want to run will also drive the adoption of a particular system.

Recent technological advancements have enabled the development of fully wireless, easy to use EEG systems that provide high quality, medical grade signals in an unobtrusive manner. When purchasing an EEG system, researchers should consider the tradeoffs between set-up time and signal quality based on their research agenda.

Another decision point is the sensor configuration, which will be driven by the regions of the brain that you would like to record data from. In general, the more sensor sites an EEG system provides, the more regions of the brain it covers. At a minimum, most researchers aim for coverage of the frontal, central, parietal, and occipital regions. Depending upon a study's goals, the prefrontal area, which is on the forehead, or the temporal areas, which are on the sides of the head, may also be of interest. Selecting a system that offers coverage along both the right-hand and left-hand sides will enable measures of laterality.

***When is it worth it to go with a system that has all 19 channels of the International 10-20 Montage?***

A system with all 19 of the International 10-20 channels involves more set-up time than a system with fewer channels, but it gives you more options in terms of data analysis, such as 3D source localization or metrics that need temporal or prefrontal data. Additionally, the 10-20 system also offers more coverage in the occipital and parietal area (i.e., visual cortex).

On a high level, EEG analysis can be broken down into three main categories: changes over time, event locked, and 3-D modeling. Changes over time would be things like frequency-based power spectral densities (PSDs). Event-locked analysis looks

at brain activity immediately before or after a stimulus has been introduced; it's an instantaneous reaction that is locked to when the event happens. 3D modeling includes analysis like source localization or LORETA, which requires the 19 channels of the international 10-20 montage.

***If you want to measure emotion, what regions of the brain do you need to consider?***
This decision depends upon the specific emotion measures that you are referencing from past literature; because emotion-based metrics are still in the research phase, it is best to use a system with coverage across as many regions as possible. Ultimately, the selection will be based on the hypotheses of the research study.

***What types of electrodes are associated with some of the EEG systems?***
Traditionally, the electrodes that provide a fluid (or "wet") connection have a paste-like form. ABM uses all-soft electrodes that rely upon conductive synapse cream that is more lotion like and rinses out more easily. A lot of people are also interested in dry electrodes, as opposed to wet electrodes, because of easier and shorter set-up times. But there are tradeoffs. For example, dry electrodes are rigid and can be uncomfortable, and the dry interface can actually introduce additional noise.

***There are so many different EEG systems out there. What are some of the main differences between consumer grade and medical grade systems?***
Typically, consumer grade EEG signals have not been validated against any of the gold standard wired systems. With those systems, you are less sure that what you're measuring is actually brain activity and not something else (like EMG or EOG artifact). So for publishing or research purposes, a consumer grade EEG may not hold up in that regard.

***What are some of the steps in setting people up with an EEG?***
With any system, the set up does take some training to ensure proper sensor placement. With some EEG systems, the only prep required is a quick alcohol wipe across the participant's head, filling the sensors, and making sure that the sensors are in contact with the scalp. For researchers, it is definitely a good idea to do a couple of dry runs before running participants so that you can catch problems early on and be well-prepared to get high quality data for your subjects.

***What is the range of set-up time for the mobile and wired systems?***
Set-up time can vary, and it depends on a number of factors, such as number of sensors, hair length, and troubleshooting. Typically, the time can range between 5–30 minutes for mobile EEG. For wired systems, it usually takes longer.

***What software is used with an EEG system?***
There are some open-source solutions, like the EEGLab, MatLab toolbox, but most companies also have proprietary software for acquisition/analysis. Proprietary software often includes algorithms and metrics for things like artifact decontamination and cognition-based measures. Generally, for researchers, always find equipment that gives you access to the raw data. If

you plan to develop your own software interface, you can also keep an eye out for companies that include the software developer's kit (SDK). In terms of filtering out noise, you can either use a software that includes decon algorithms or you can write your own algorithms.

***Can you talk more about the different sources for noise with EEG?***

Absolutely, noise is a big concern with EEG. The amplitude of the electrical signals measured at the scalp is not that big when compared with muscle movement from the head, neck, or face. We always recommend that researchers instruct the participants to relax, as a big source of noise is when participants tense up (e.g., clenching, moving neck). Any movements of the head or neck will create more noise. However, with mobile EEG, walking around actually does not contribute a lot of noise, so long as the participant relaxes the muscles in their upper body and face. One way to get around noisy measurements during an active task is to do a pre–post measurement: measuring brain activity prior to the task and immediately after the task.

***How do you determine the minimum required sample size when using EEG data? In other words, how would you conduct a power analysis?***

There are a lot of different factors to consider, such as where one is in the research process, to the number of variables in the design. Because I-O psychology is so new at incorporating neurophysiology, the studies are primarily pilot studies to establish capability. For pilot studies, 10 people in one group is often enough.

***Can you talk a little bit more about LORETA, the source localization?***

LORETA has been around for a couple of decades, and it is becoming more popular in the research field. It is a method that allows you to take the voltage measurements at the scalp from EEG, and use that data to reconstruct the source of the activity in the brain. So you're able to map where the neuronal activity is generated in the brain using mathematical model. One caveat with LORETA is that it is primarily only run on resting state data. Because a lot of I-O researchers are interested in brain activity when participants are doing some type of task, LORETA could still be applicable for looking at baseline differences in the brain.

***What about mobile EEG? What are some considerations to make when purchasing mobile equipment?***

The researcher should determine the primary benefit he or she is hoping to get from a mobile system, because there are trade-offs for mobile EEG. If the research design calls for participants to engage in active tasks, and there will be some level of movement involved, mobile systems can actually provide better signals than wired systems, because the wires are often a source of signal noise when there's physical movements. In addition, mobile EEG has an easier set up, is better for realistic unobtrusive settings (e.g., driving), and is more comfortable. We try to get the participants to forget that they are wearing the EEG.

***What is the cost of EEG?***

The medical/research grade mobile EEG systems usually range between $10,000 and $50,000. Because a system is a combi-

nation of the right hardware with the best software for your application, you will want to consider the cost of both components when securing funding for an EEG system. When evaluating options, consider the key analysis goals of the study—and many companies will offer complimentary software trials to help you make your decision.

***What are some things to do when buying and using an EEG system for research?***

- Keep your goals in sight when setting up design.
- Keep track of data quality during data collection.
- Add objective metrics to supplement your questionnaires.
- Know the outcome measures and surveys.

What are some common pitfalls with researchers attempting to purchase EEG? One big thing is not having a big-picture idea of research goals before buying the system or not having a plan ahead of time on how to run subjects or how to analyze the data. Planning ahead can avoid the problem of trying to squeeze too much into a short amount of time. Avoiding these things can help researchers troubleshoot, get higher quality data, and be more prepared.

***If you had no association with any EEG suppliers, what would your EEG shopping process look like?***

Oh that's a good question. I think I would at least have one research study in mind, because it allows you to prioritize the key aspects of the system that you need. It could be a combination of factors such as mobility, comfort, or safety. It also depends on your planned sample population. Most researchers are working with college-age, healthy participants, which definitely makes it easier in terms of choice. If you need IRB approval, then you might look for a system that has a good track record with IRB. Depending on the study, you might also want to go with a system that has been US FDA cleared.

## Conclusions

Thank you to Stephanie Korszen from ABM for sharing some of the technical details about EEG equipment and investing in neurotechnologies. We hope it provided some useful insights into the processes of purchasing and using neurotechnologies in I-O psychology. There are several neurotechnologies available in addition to EEG, and we're confident that I-O psychologists will be able to use these new tools to enrich I-O research and practice.

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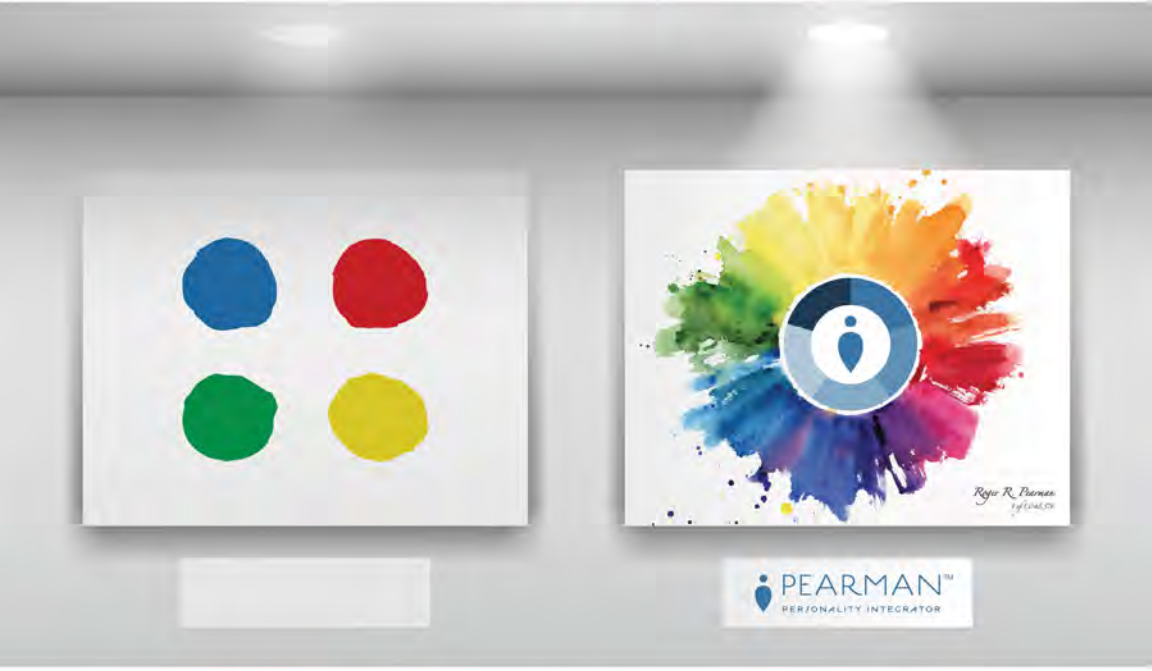
# The end of Personality Stereotypes

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Spotlight on Humanitarian Work Psychology

**Ashley Hoffman**
Elon University

## #thispsychmajor

For those of you with excellent memories, you'll recall I mentioned in the last column I would discuss the Sustainable Development Goals in this issue's column, as they were recently installed in September, 2015. However, being the savvy *TIP* reader you are, you'll also recognize that a wonderful feature article was published last edition, not only explaining the SDGs but also identifying some key ways that I-O psychologists can get involved in the accomplishment of these goals (Foster et al., 2015). As such, it seems a bit redundant to talk about the SDGs in this column, and so we will move to another topic, with the potential for revisiting the SDGs in a future installation after some results and reports have been generated.

Perhaps some of you have seen the media coverage of Jeb Bush's recent remarks about psychology majors and their destiny as fast food employees (e.g. Strauss, 2015). Being engaged in the field as we are, psychologists responded voraciously, taking to Twitter using the hashtag #thispsychmajor to express their disagreement with the comment and to provide plenty of examples of what psychology majors are doing in their careers.

Now, I must say that although I disagree with the way the comment was made, I think I understand a bit of the sentiment behind the statement. In context, the statement was encouraging university systems to focus more on training work in the trades, such as electrical or plumbing careers, and less on the liberal arts approach that has become expected at the higher education level. Yet, as much as I agree that societally we need to encourage more training in trades and trade schools, the comment also hit a nerve with me. Sometimes, it is tough to be a psychologist, especially practicing a type of psychology that is a small, fairly unfamiliar form of psychology. I mean, how many times do I have to answer the question "Oh! So, you help if someone goes postal at work?" Let's not even mention trying to explain that I'm particularly interested in an even smaller subset of I-O psychology called humanitarian work psychology and what that means!

So, what is the enterprising humanitarian work psychologist to do? If I-O psychology in general is facing an uphill battle

trying to prove our relevance in a world that clearly needs our expertise, how does HWP gain the traction to show corporations, nonprofits, volunteer organizations, and aid and development entities that our expertise is of value?

One of the most exciting things to happen recently is the creation of the Social and Behavioral Sciences Team in 2014 (SBST; Social and Behavioral Sciences Team, n.d.). This team consists of a variety of social and behavioral scientists (including SIOP and GOHWP's own Lori Foster), representing fields such as economics, psychology, and political science, among others. This team recently released an annual report detailing the projects and policies that have been implemented, improved, or adapted over the previous year (Social and Behavioral Sciences Team, n.d.). In addition, the SBST wrote an executive order that was signed into law by President Obama in September 2015 that highlights the need for the social and behavioral sciences to be taken into consideration at the federal level in order to improve the quality of life for all Americans (The White House, Office of the Press Secretary, 2015). This order was a pivotal step toward the perception of legitimacy of the social or behavioral science profession.

However, being validated at a federal level requires us to continue in our own professional improvement. To move beyond being seen as more serious than just another "soft science," we must work hard to push an impeccable product, including rigorous research and appropriate application of said research. At SIOP 2015, past-president **Jose Cortina** continued to urge reform of research practices and has been particularly focused on the examination of our statistical practices such as null hypothesis significance or effect size testing protocol (e.g. Cortina & Landis, 2011). Other research has suggested the need for increased rigor based on the continued growth of "big data," what such data will mean to our profession (King, Tonidandel, Cortina, & King, 2015), and called for consistent, meticulous, and practical application in all data reporting (Aguinis et al., 2010).

As recently as August 2015, the scientific community has seen psychological study in particular come under scrutiny about the replicability of our studies (Open Science Collaboration, 2015). The discerning reader will note that the authors did mention the natural drawbacks of scientific study and the need for replication; however, should a reader take note of simply the title or abstract of such studies, it would only lend credence to the uphill battle that the social sciences face when trying to prove our scientific merit. These headlines often receive a 60-second mention during an evening news broadcast, which only serves to solidify public opinion about the unreliability or irrelevance of psychological study. This is why it is important that we not only conduct impeccable research but also strive to provide access to research and associated conclusions to both mainstream and corporate audiences in a way that is digestible and relevant to the public at large.

There are certainly a great many researchers with projects underway that deserve mention due to their importance to advancing the field of I-O, particularly from

an HWP perspective. This is not an exhaustive list by any means; rather, it is an overview of a couple of projects that will serve to highlight the way that research is being conducted, not only with rigor but also with an eye toward the ease of application of results to many people and the attractiveness of such practical studies.

The first project is a new project entitled "Project GLOW" (Global Living Organizational Wage). As the name suggests, GLOW is an empirically based project whereby the researchers seek to investigate the individual, organizational, and community issues (and opportunities) surrounding living wages globally, and translate those results into evidence-informed education, policy, and advocacy surrounding wage policy and sustainable livelihood (**Stuart Carr,** personal communication, January 30, 2016). This project, in its infancy, will engage a variety of university-based hubs globally to begin addressing an issue central to many of the SDGs— specifically, those related to poverty reduction, decent work, ending inequality, and partnerships for development and success. The project encourages each hub to engage in stringent and culturally competent research and will provide opportunities for teaching, service, and evidence-informed advocacy for members of GOHWP. This promising new study is an exciting prospect of the way that institutions and researchers can work together toward the completion of the SDGs.

Another similar project is called "Project FAIR." FAIR seeks to study the implications of pay differentials between national and international aid sector employees (Project FAIR, n.d). As previous research has indicated, host country and expatriate workers, often skilled professionals both, are frequently paid on very different remuneration scales, a pecuniary structure that can be experienced as unfair and unjust, and thereby create unnecessary and unwelcome strains on teamwork and effectiveness and capacity building (McWha & MacLachlan, 2011). FAIR seeks to address these issues with rigorous evidence on what works and when from an organizational remuneration and aid worker standpoint. As the name suggests, Project FAIR seeks to develop an evidence-informed set of policy options for managing aid work more fairly and sustainably, while also meeting the SDG targets for decent work, inequality reduction, partnership, and poverty eradication.

These types of large-scale research projects are imperative for a variety of reasons. First, the relevance to the SDGs in unmistakable and something that is so important in terms of global recognition. The more avenues HWP can use to gain public awareness, the more our work is seen as valuable and important. In addition, these projects capitalize on the networks available for collaborative study. As I-O and HWP continue to move into the future, we will not remain untouched by the globalization of organizational life. Therefore, it is clear that our research must also reflect a global perspective as much as possible. Finally, these projects emphasize the need for rigor in our scientific study, particularly study that will influence policy changes at both local and global levels.

Although the research I've highlighted is critically important, the application of

such study is also crucial. There are a great many I-O-HWP folks out there using their knowledge, skills, and abilities in unique ways that impact the greater good. I'm going to highlight a couple of the ways people have leveraged their interests to carve out a niche for themselves that includes both I-O and humanitarian interests.

One application is the work of the Volunteer Program Assessment (Olien, Dunn, Lopina, & Rogelberg, 2014; VPA; Volunteer Program Assessment, n.d.). This program, created at the University of North Carolina at Charlotte, works with nonprofit organizations to improve the management of volunteer resources. VPA, now hosted at five additional university partners, allows nonprofits access to sophisticated empirically based measures and approaches in order to provide systematic improvement that may normally be unaffordable or inaccessible to such organizations.

Another example is how an individual can uniquely adapt to use an I-O background in an aid and development organization. **Kristen Kirkland** began her I-O career working for large financial institutions in a pretty traditional, typical I-O role. However, she also spent her free time volunteering with Every Mother Counts (EMC; Every Mother Counts, n.d.), a nonprofit working to improve maternal health care and childbirth for women both domestically and globally. Eventually that volunteer role turned into a job, allowing Kristen to work as both an HR director as well as the running program director. Not only has Kristen used her expertise in I-O to lead in the management of employees, but she has also adapted those skills to coordinate fundraising in the form of sponsored running events. Her unique approach to I-O psychology continues to provide a clear indication that it is possible to combine both traditional I-O work with a bit of a nontraditional setting, as HWP seeks to do so frequently.

Other initiatives continue to exist that allow an interested party to explore what it might mean to use one's psychology skills in a unique setting. For example, Psychology Day at the United Nations is a day devoted to highlighting the usefulness of psychology in addressing a host of global issues (Psychology Day at the UN, n.d.). This year's Psychology Day will feature discussions about using psychology to address global migration and the influx of the vulnerable population of immigrants who are required to exhibit a great deal of resilience.

As I said, these examples are a scant few of the creative and exemplary projects and tasks being completed by the professionals I am honored to call colleagues. These are great—but we aren't there yet. My charge is this: We humanitarian work psychologists (and I-O psychologists at large) must continue to work toward greater public understanding of the relevance and importance of our work. We have to continue to hold ourselves to the standard of producing the highest caliber of research. We must engage in collaborative, global projects that speak not only to a select group of people but to large populations and at a policy level. We need to seek creative and meaningful outlets to use our expertise in a way that improves the world for future generations. I am excited and encouraged by the emails

I receive, both from people doing new and creative work and those seeking to get involved. It is my greatest hope that HWP will work itself out of existence—understanding that contributing to the greater good in our organizations and in our aid and development is something that all of I-O will be known for without specification. #thispsychmajor does believe it is a great time to be a psychologist!

As always, for more information or to get involved with these or other available projects—or if you have projects you'd like GOHWP to consider featuring, feel free to visit GOHWP.org, or email me at chair@gohwp.org!

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# Toward a Business Acumen Competency Model for I-O Practitioners

**Matthew Minton**
Verizon

Our discipline is deeply rooted at the intersection of psychology and business. Plainly, without business,[1] industrial-organizational (I-O) psychology as we know it would not exist. In a small irony, for those of us who received our education in a department or school of psychology, little instruction or knowledge related to business may have been imparted. Thus, unless we learned it on our own or were fortunate enough to have former business experience, many of us left graduate school lacking in basic business acumen. A lack of business acumen can have a major influence on many facets of our professional life, and it can impact our credibility and success as practitioners when we are required to speak the language of our clients and understand their businesses.

In response to the relative dearth of education related to business acumen among I-O psychology practitioners, the SIOP Professional Practice Committee (PPC) sought to develop a business acumen competency model for I-O psychology practitioners. The desired outcome of the project was a competency model that would benefit all members of SIOP, from practitioners of all stripes to graduate students to academics that develop graduate school curricula. We are hoping the model will help guide continuous and ongoing education efforts to equip practitioners with the skills and knowledge they need to succeed.

The purpose of this Practitioners' Forum is to present the Business Acumen Competency Model for I-O psychology practitioners that was developed by the PPC. It is divided into three parts. First, I provide context by presenting two definitions of business acumen from two organizations that have a similar focus as SIOP. Next, I briefly discuss the focus groups that generated the initial draft of the competency model. Finally, I present the final competency model and I-O-specific definition of business acumen that resulted from the endeavor.

## Business Acumen

Business acumen as a salient competency needed for success by business professionals has seen a resurgence in recent years, some of which can be tied to the popularity of the *New York Times* best seller "MBA in under 180 pages" pop-business self-help book *Seeing the Big Picture* (Cope, 2012). Other evidence of this resurgence can be seen in the production of business acumen competency models by government and professional organizations, including the U.S. Office of Personnel Management (OPM) and the Society of Human Resource Management (SHRM). Before describing the process by which the competency model for SIOP was developed, I think it will be helpful to present how business acumen is defined by these two organizations.

The OPM developed a three-pronged business acumen competency model that was part of their larger leadership competency model. The OPM defines business acumen as "the ability to manage human, financial, and information resources strategically" (OPM, n.d.). The three meta-competencies that comprise business acumen are, as can be logically inferred from the definition, financial management, human capital management, and technology management.

SHRM defines business acumen as "the ability to understand and apply information to contribute to the organization's strategic plan" (SHRM, 2012). The SHRM business acumen competency model consists of 12 subcompetencies, and, like the OPM model, it is presented as a component within SHRM's broader professional HR competency model. Examples of the subcompetencies include business knowledge, economic awareness, knowledge of finance and accounting, and HR and organizational metrics/analytics/business indicators.

## Building the Competency Model

The development of a business acumen competency model has been on the radar of the PPC since the late 2000s. The need for a model was reinforced by SIOP members in the 2015 Practitioner Needs Survey, where respondents noted that receiving training in several business acumen-related knowledge and skills (e.g., strategic skills; presenting data persuasively/showing ROI) would be valuable (Ferro, Porr, Axton, & Dumani, 2016). With multiple prevailing forces indicating that the time was ripe for the development of the model, the PPC scheduled five focus groups with SIOP members in November and December 2014. Participants included a range of I-O psychologists, from internal and external consultants to sole proprietors, practitioners that work in the public sector, and career academics. The mix of backgrounds and perspectives provided for engaging and fruitful discussions along with the foundational information and data needed to develop an initial draft of the competency model as well as multiple definitions of business acumen for I-O practitioners.

## Business Acumen Competency Model for I-O Psychology Practitioners

The draft competency model underwent a critical review by the PPC subcommittee that led the project. Ultimately, the subcommittee settled on a model that

comprises of six meta-competencies, each of which contained 3 to 10 competencies. This model was reviewed and validated via a survey that was sent to the SIOP membership in May 2015. A total of 503 members completed the survey. The final competency model (Table 1) is presented below along with the definition of business acumen that was rated highest by the survey respondents.

Table 1

*Business Acumen Competency Model for Industrial-Organizational Psychology Practitioners*

| | |
|---|---|
| **Business environments** | Knowledge and understanding of organization's strategy and business model |
| | Knowledge and understanding of organization's industry, business landscape, and legal/regulatory environment and how each impacts the organization |
| | Knowledge of organizational culture |
| | Ability to take a systems perspective (i.e., knowledge of how parts and pieces [departments; stakeholders] of an organization fit together and how HR processes connect to broader organizational goals/priorities) |
| | Ability to connect I-O-related product/service/solution to ongoing trends within an organization and/or the larger business world |
| **Business analytics** | Knowledge of how to gather, organize, analyze, and interpret organizational data |
| | Ability to effectively interpret data for an organization and communicate the "story" that the data tells (e.g., using data visualization skills; ability to present data graphically for a business audience) |
| | Ability to develop and recommend solutions based on analytics |
| | Ability to conduct a needs assessment |
| | Ability to conduct a ROI and/or utility analysis (e.g., show/demonstrate the value of I-O psychology in financial terms) |
| | Ability to apply critical thinking to the problems of a business |
| **Business communication (written and verbal)** | Ability to speak using business language (e.g., business acronyms; organization-specific acronyms; business jargon) |
| | Ability to translate (in writing and verbally) analytics/statistics to a business audience |
| | Ability to present and target a message appropriately based on topic and audience |
| | Ability to communicate to non-I-O audiences by avoiding technical jargon and speaking in a language that the audience understands |
| | Written presentation skills (e.g., ability to script a presentation for a non-I-O business audience) |
| | Verbal presentation skills (e.g., ability to set appropriate context by acknowledging the business-related parameters of the situation) |
| **Financial concepts, tools, and terminology** | Knowledge of basic accounting principles |
| | Knowledge of shareholder value |
| | Ability to read, interpret, and use business-related financial tools, reports, and metrics (e.g., annual reports; investor reports; P&L statements; financial statements; budgets; contracts) |
| **Business development** | Knowledge of basic marketing and sales principles |
| | Networking skills (e.g., ability to build, maintain, and leverage professional networks) |
| | Ability to develop and write business proposals |
| | Ability to build a business case |
| | Ability to write business contracts |
| | Ability to explain the value that I-O psychologists bring to organizations |
| | Ability to sell I-O solutions in terms that the organization understands |
| | Ability to conduct competitive analysis (e.g., develop pricing models; know where to price oneself) |
| | Ability to brand oneself appropriately (e.g., as business advisor versus I-O psychologist) |
| | Ability to connect and build trusting partnerships/relationships with clients/customers/stakeholders in business environments (e.g., respectful of others' time, positions, and perspectives; focused, motivated, and responsive to others) |
| **Business operations** | Knowledge of contracts/contractual business relationships |
| | Knowledge of business laws and regulations |
| | Ability to manage a budget |

*Business Acumen for Industrial-Organizational Psychology Practitioners*: Understanding the needs of a client, business, and/or organization and using I-O psychology expertise and best practices to respond to those needs in a business context.

## Postscript

If you would like to learn more about the business acumen competency model as well as hear stories about how developing and using business acumen has benefited the work of several expert practitioners, I encourage you to attend the SIOP panel session "Business Acumen or Stories about How to be Relevant." It will be held at 12:00 p.m. on Saturday, April 16, 2016. Also, later in 2016, the PPC will publish a formal technical report that documents the development and validation of the SIOP Business Acumen Competency Model for I-O psychology practitioners. The report will include an overview of the methodology followed to develop the competency model as well as a thorough summary of the 2015 survey results. The technical report will be available on the SIOP website. I encourage all practitioners, irrespective of where they are in their careers, as well as academics, especially those that play a role in developing graduate school curricula, to read the technical report and think about how the model can benefit them, no matter their role or place of employment.

## Note

[1] Broadly construed as industries and organizations.

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**Lynda Zugec**
The Workforce Consultants

For this issue of the International Practice Forum, we reached out to our colleagues in Australia to give us some insight on what the industrial-organizational psychology landscape looks like. In Australia, it is more commonly referred to as organizational psychology. Past Chair Peter Zarris and current Chair Tim Bednall of the Australian Psychological Society College of Organisational Psychologists provide us with an overview of the strategic aims of the college, ongoing progress, and potential opportunities.


Peter Zarris


Tim Bednall

## A Look Down Under: Organizational Psychology in Australia

### The College of Organisational Psychologists (COP)

The College of Organisational Psychologists (COP) is one of nine colleges. It operates under the jurisdiction of the Australian Psychological Society (APS), the professional association representing psychologists in Australia.

COP's primary purpose is to ensure that we provide members with the support and information to meet their basic regulatory and legal requirements. A core function is to provide advocacy on behalf of our members, especially when faced with regulatory changes that are likely to have an adverse effect on the profession. We ensure that members have the information and support to maintain their professional recognition as an organizational psychologist (referred to as area practice endorsement here in Australia).

While these fundamental services define what the college does to support members, ultimately the college has greater aspirations. We aspire to promote not only the services and capabilities of our individual members but ultimately the strategic benefits that our skills, training and knowledge can provide organizations to ensure a healthy, effective, high performing, and people focused business.

As such, COP has evolved from a focus on representing members' needs around core requirements into seeking to build a value proposition for our members and a strong external brand.

In simple language, this means focusing our primary purpose on building an understanding of what organizational psychologists do. It involves building an understanding of the benefits of working with organizational psychologists and developing our influence within the business community. Our ultimate goal is to ensure that the services we offer, particularly around our core competencies, are seen to be fundamental to the development of a sustainably effective organization.

In short, our aim is now to move our focus from the internal requirements of being a psychologist and an organizational psychologist to a focus on building an external awareness of what it is we offer.

**The Future**

To achieve these strategic aims, our college is currently focusing on four key initiatives to build an awareness of who we are and what we do.

These initiatives are:

1. The development our brand, especially with the introduction of our Workplace Excellence Awards
2. The creation of a member value proposition to ensure the college is providing value for all members
3. The development of websites and other materials to assist us in developing an awareness of what we do and provide members with up to date access to ongoing information
4. A national professional development and training plan
5. An international stakeholder management plan: in essence, building alliances with our international counterparts to promote the profession and our individual members

***The Workplace Excellence Awards***

Part of the College's key focus over the last 2 years has focused on developing a strong external brand. The aim of our branding exercise was to address three core issues that were identified by the National Committee. The first issue was that, outside of the profession, there was not a common understanding of what the term "organizational psychologist" meant. The second was a lack of understanding about how organizational psychologists' core competencies and expertise were crucial to business success. The third was that historically, organizational psychologists found it difficult to communicate what they did in simple language to laypeople.

The result of this process was the college's introduction of the Workplace Excellence Awards, with our inaugural awards taking place last year. The concept of the awards was twofold: (a) to identify best practice in our set of competencies, and to recognize organizations in which they had been expertly applied, (b) to use the awards to build our brand by linking the college with excellence in these areas.

The seven areas chosen were: (a) assessment of individuals, teams, and organizations; (b) coaching of leadership, career, and performance; (c) organizational change; (d) workplace health and well-being; (e) recruitment and selection; (f) organizational design; and (g) performance management.

In the inaugural awards, there were 45 organizations that made applications for the awards. In all but one category, we identified suitable winners who met the criteria of achieving excellence. Presented at a dinner as part of the college's 2015 conference, the awards were a resounding success.

Ultimately, they achieved the college's aims of not only explaining the core and therefore differentiating competencies of organizational psychologists but also linking excellence as an organizational psychologist to those core areas.

Our ambition is to continue to grow the Workplace Excellence Awards and to continue to grow the awareness of what the college does and what benefits organizational psychologists can provide by continuing to build on this event and to continue to build the linkage between the college and these core areas as our core communication strategy with the external world.

As we prepare ourselves for the second Workplace Excellence Awards, the college and the various contributing members have taken great pride in the strides that this event has allowed for our core purpose, which is the development of the brand of organizational psychology in Australia.

***The Member Value Proposition***

The Member Value Proposition is the second key platform and strategy that the college is focusing on in the future.

This initiative is based on the identified need to develop a cradle-to-grave strategy to deal with members' needs at all stages of their career. It recognizes the need to align the college's activities to meet the needs of all members.

Research indicated that some of the key issues members wanted addressed include:

1. Understanding the relevant information about our members' professional needs and their regulatory responsibilities around their professional needs.
2. Creating a process that provides members with an ongoing continuing professional development process that takes into account their previous development in the stages of their careers.
3. Making relevant courses, conferences, and other learning activities accessible and broadening this accessibility to international learning opportunities.
4. Providing opportunities for our members to extend their professional community and networks and to gain value and a sense of belonging to the college and in being organizational psychologists.
5. Leveraging the brand and reputation of organizational psychology to enhance both the reputation of our members in the marketplace and promote and develop the opportunities for our members to practice and grow their professional and business careers.

The central aim of the Member Value Proposition strategy is to build a close alliance between our members and the services that the college offers.

***Our Communication and Website Strategy***

The third strategic pillar is the development of our communication and website strategy. Ultimately, the aim of this portfolio is to create a strong internal community of organizational psychologists and to facilitate the sharing of knowledge.

This portfolio aims to connect members to relevant information, services, resources, and events. It also aims to connect our profession to relevant businesses and communities.

Key activities in this portfolio include the development of a stronger social media presence, in order to facilitate two-way communication between ourselves and our members. It also allows us to easily share content and to keep people up to date with the most recent developments in organizational psychology.

We are also in the process of establishing an online knowledge management system in order to share resources among our committees and to keep track of information about our members' professional development needs.

This portfolio also oversees the development and promotion of the college's academic journal, *The Australasian Journal of Organisational Psychology*. This is a regional journal that publishes organizational psychology research from Australian institutions.

***Our National Professional Development Strategy***

The purpose of this portfolio is to provide easily accessible, timely, up-to-date and relevant professional development (PD) activities for members. An additional aim of the national portfolio is to inform on the specific activities provided by the states, in terms of membership needs as well as contemporary workplace and societal trends. The portfolio also aims to facilitate knowledge sharing between members at different locations.

A key action in this portfolio will be the development and national rollout of a system for the electronic delivery of remote PD activities. These will include video recordings from local PD activities in addition to original content produced by ourselves (e.g., podcasts).

Also, this portfolio supports the development of additional professional supervisors for both university students and graduates. Doing so helps build the numbers of our members who are able to attain professional recognition as organizational psychologists.

***International Stakeholder Management Plan***

The National Committee of the College has long understood that because of the volatile regulatory environment we have been operating in and because of the unique challeng-

es in meeting the regulatory requirements as an organizational psychologist that it has been difficult for us to focus on building the types of national and international stakeholder networks to meet our desires, particularly around our branding and our member value proposition strategies.

The fifth plank therefore of the college is the development of a stakeholder management plan, which essentially will be to build specific alliances with international organizational psychology bodies and develop not only relationships and alliances with those, but ultimately to develop an international coalition of like-minded professionals with similar professional interests and with similar professional challenges.

This particular initiative is in its infancy stage, but does represent a great opportunity for the college to take our development to the next level.

We believe that our first step in moving our college from being an internally focused entity (particularly within the APS) to communicating with the external community via the Workplace Excellence Awards will be enhanced by a further strategy in building international alliances and an international community of organizational psychologists, particularly with SIOP in the USA.

At this stage, this is an aspirational strategy, but it is our fervent hope that as we embed our Workplace Excellence Awards, Member Value Proposition, national professional development plan, and communication strategy then we can focus more heavily on our international stakeholder strategy.

***In Summary***

The College of Organisational Psychologists in Australia has made giant strides over the last 10 years, and it is a great source of pride to the myriad of people who have served in a variety of positions on the National Committee.

Over the last 10 years we've established ourselves at running outstanding events, a highly profitable college with a highly committed and active constituency.

Developing a lifelong value proposition and developing our brand via the Workplace Excellence Awards (such that being an organizational psychologist has enormous efficacy and value) and a communication strategy we are hopeful that we can rebuild a strong desire to become a practice endorsed organizational psychologist.

In the meantime, we look forward to building our international alliances, continuing to promote our professional development events, and creating an environment where our members continue to be passionate, engaged, and active in our various activities.

We look forward to building our alliances with our international brothers and sisters in the coming years!

WE NEED YOU AND YOUR INPUT! We are calling upon you, the global I-O community, to reach out and submit topic ideas for future columns. Give us your insights from lessons learned in your practice. We are always looking for contributors and always on the lookout!

To provide any feedback or insights on the International Practice Forum, please send an email to the following address: lynda.zugec@theworkforceconsultants.com


# Government-Mandated Pay Reporting Is on the Horizon

**Richard Tonowski**
EEOC

On January 29, 2016 (seventh anniversary of President Obama's signing of the Lily Ledbetter Fair Pay Act), The U.S. Equal Employment Opportunity Commission (EEOC) announced the long-anticipated proposed regulations for pay data collection. Private-sector employers with 100 or more employees will complete an expanded EEO-1 annual workforce demographics report that will now include 12 pay categories. The EEO-1 has been around since 1966; the current rules for which employers are required to file the report are not changing. Pay data would be based on W-2 earnings; employers would also report total hours by pay band. EEOC is soliciting comments on how to handle hours for salaried employees whose hours are not generally tracked. The first pay report would be due in September 2017; employers would report a year of pay data looking back from any pay period between July 1 and September 30 of the reporting year. The rule includes federal contractors and supersedes the Department of Labor proposed regulation announced in 2014; the two agencies are together on the EEOC plan. There is speculation that federal contractors with 50-99 employees who currently file EEO-1 might be included later. Comments were being taken until April 1.

The history of the rule goes back to the resident's National Equal Pay Enforcement Task Force, established in 2010 to promote interagency cooperation in fighting pay discrimination. One of the action items was for EEOC to contract with the National Research Council (NRC) for a report on methods to collect pay data. That report (NRC, 2013) raised questions of what the data would be used for as well as making recommendations on collection details and confidentiality concerns. It also recommended a pilot program before full implementation of any program. EEOC contracted with Sage Computing for a study, using the EEO-1 as the collection instrument (Sage Computing, 2015). EEOC also held a 2-day meeting in 2012 to get input from various stakeholders.

The EEOC rule states that the purpose of the data is to "assess

complaints of discrimination, focus investigations, and identify employers with existing pay disparities that might warrant further investigation." To that end, the agencies will develop software so that investigators can conduct statistical analyses to compare an individual employer's numbers with data aggregated by industry and geography.

It's daunting to write this knowing that by the time it reaches its audience, there will be other very good and probably more detailed commentary available. The period for commentary on the proposed rule will have closed, although likely there is still a public hearing in the offing and the discussion likely will not end there. I take the plunge because this topic represents a unique juncture of civil rights law, social concerns, and the application of science that should be of interest to the I-O profession.

The EEOC proposed rule comes at a time when the effectiveness of merit pay and the usefulness of the traditional annual performance evaluation are under new scrutiny by practitioners and researchers, and Big Data offers the opportunity for more detailed and objective (and potentially more intrusive) insight into job behavior and results.

Depending on the commentator, this initiative is substantive action dealing with an enduring problem ("a significant step forward to address pay inequality"), political posturing ("Obama's new pay equality rule"), or a confused muddle ("well intended but not well thought out," "You can't compare oranges and apples in the same group . . . too many false positives and too many false negatives.").

Five statements about the proposal can be put forth with relative certainty:

*A new regulation is likely*. Despite some questioning of EEOC's authority, this is a Title VII record-keeping matter for which EEOC can issue regulations not just guidance. Plenty of effort and political capital is already invested in the project.

*It will be a coarse measure*. The proposed EEO-1 would include 10 occupational, 12 pay, 7 race/ethnic, and 2 gender categories. Even so, that gives little specific information for, say, the professionals category. There could be any number of occupations and pay ranges. An example that has been mentioned involves physicians and nurses in healthcare. Both occupations are professionals, but both qualifications and pay are different, and there may be differences in relative representation by sex. The relative number of employees per job could be different across organizations, so even within the same industry comparison of employers could be limited. The practical matter in getting the details is that even this proposal is being criticized as burdensome to those who do not have automated systems to capture and integrate pay data into their EEO-1 reports. Data collection is limited to employers who file EEO-1 reports and have at least 100 employees. That gets to larger employers but obviously not to everyone. Using the W-2 as the pay data source has the advantage of capturing all compensation for the employee, but that inclusiveness is also problematic. In any job category, pay may vary because of overtime, shift differentials, temporary

assignments, or competency enhancement provisions such as pay for knowledge. *Employer burden concerns need to be aired*. EEOC acknowledged this in its estimation of employer cost and workload and invited comments. The method used in the proposal assumes that the additional data for the reports can be assembled within electronic data systems. On average, this should take 6 hours and increase the employer's cost by $160. Critics have been quick to complain that this is a major underestimate. In addition, the W-2 data normally produced for the calendar year needs to conform to the EEO-1 reporting cycle ending on September 30.

*Confidentiality is another concern*. EEO-1 aggregated data are made available to researchers; individual reports are not released. There seems to be little problem in leaking EEO-1 individual employer data currently, but the stakes might be higher with compensation data. The United Kingdom has its own pay disclosure proposal, apparently with the government intending to shame employers with gross male–female inequities (Cauterucci, 2016). Firms with 250 employers or more will submit descriptive statistics on male–female pay beginning in April 2017. The data will go on a searchable public website. The EEOC proposal does not have this disclosure; employers on this side of the Pond are concerned about any disclosure, even if released data do not name names. Identity both of the firm and of some employees could be inferred by the size, composition, and location of the work force. The Freedom of Information Act, intended to foster transparency in government, might also promote transparency in supposedly confidential reports regardless of agency safeguards. Another concern is that conscientious employers will want to audit their compensation systems in advance of any reporting, but they will be wary of creating records for plaintiffs in subsequent EEO investigations.

*Details for using the data need to be worked out.* This is acknowledged in the proposal, which references the pilot study (Sage Computing, 2015) that explains some of the choices made for data collection, which of necessity impose limitations. The report has a detailed discussion of statistical analysis methods, although the focus seems to be on three mentioned below. It is probably worth a read for anyone who is analyzing pay disparity. Much of the discussion on past research seemed to focus on economy-wide analyses; for the present purpose, two sets of synthetic data were constructed and analyzed. Ay, Holt, and Reardon (2016) seem to be the first with an examination of the proposed statistical methodology. Following the report, they focus on the Mann-Whitney U test, Kruskal- Wallis test, and interval regression. The usual analogous methods of *t*-test, analysis of variance, and ordinary least squares regression are excluded because the data are categorized. Also, Mann-Whitney and Kruskal-Wallis are nonparametric tests that do not assume that the normal distribution is underlying the data. These methods may provide a foundation for identifying industry statistical outliers, which might then receive further investigative attention. As the authors note, method alone does not set the cri-

terion for what is an outlier. The proposal mentions statistical power and significance, and the "process would include recognition of how sample sizes may influence results." What that means in practice has yet to be defined. Small differences with small numbers generally mean no statistical significance. That women make 79 cents to the male dollar is a sound bite that, although true, does not necessarily point to discrimination. That figure runs into various explanations. A recent review of national data (Blau and Kahn, 2016) takes it as a raw figure (2010 data) but gives 92 cents after accounting for a set of covariates; however, that includes adjustments for occupation and industry as "explaining" the gap. Adjustments only for "human capital" factors make it 82 cents. There is a persistent, unexplained gap that could be due to discrimination. Any unlawful discrimination is too much. But expending appreciable resources to pursue a small discrepancy that might be smaller when explained is not very exciting. On the other hand, it could be argued that it would be useful to know if there are organizational outliers with extreme differences that drive a smaller average.

How to pursue those differences may not be simple. Probably the easiest salary system to track is one where jobs are narrowly defined, pay raises are either step increases at specified intervals or across-the-board adjustments, and performance evaluations (short of grounds for termination) have no impact on pay. That's my situation, but it may not be commonplace, not even in the federal government. Pay for performance, variable pay, pay bands, and broad job classifications are more in vogue and by now are not new concepts. EEO enforcement can go awry when confronting these arrangements, as illustrated by two EEOC sex-based pay cases. Where a substantial part of compensation is variable and based in part on contribution to the firm, those on extended leave (maternity or other) may not make as much as those who stay around; that was a defense argument in *Bloomberg*. And although a group of attorneys shared the same classification, the courts in *Port Authority of NY & NJ* were not buying the argument that "a lawyer is a lawyer" when assignments as well as pay differed.

Another conceptual matter involves variation in performance. For labor-as-a-commodity, individual performance does not matter and one pay rate fits all. If there is no variation in output, then there is no reason for pay differentiation. But the research in selection utility casts doubt that this is the general case; more general is the rule of thumb that the standard deviation of performance measured in money is around 40% of salary (Schmidt and Hunter, 1998). Arguably, better performance should be better paid. But what if level of performance (or competence influencing performance) is related to EEO protected class? I-Os have been dealing with that in defending employment tests with adverse impact. Reviews such as McKay and McDaniel's (2006) meta-analysis indicate racial differences in performance but with complexity regarding types of data.

Although some dismiss the very concept of the pay report as wrong headed, the

likelihood that it will be next year's reality invites consideration of how to make the best scientific use of it. That is where SIOP—as well as other professional societies—ought to be claiming a role. Chiming in on the specifics of the proposed rule is the obvious thing. The Sage and NRC reports would seem natural starting points for constructive comments. What are the limitations of data usage in the proposal? What questions can, and cannot, be addressed by data collected under it? Are there enhancements that could be adopted relatively easily, given the competing interests of detail, cost, and confidentiality?

Beyond that are the larger issues underlying pay equity. These have all likely been addressed by one study or another—perhaps with different conclusions. But now is the time to bring this information together to define where there is generally accepted professional practice and where practice is greatly in need to be informed by research. This is a role for broad-based professional groups rather than for those pursuing critical but limited facets of pay-related issues. Performance evaluation, compensation systems, and statistical methodology are broad areas for consideration. How do I-Os and other stakeholders (folks such as EEOC investigators) know when these are effective and fair? There may be no one, simple answer for each area. But a start needs to be made if management systems and EEO enforcement are to have a sane coexistence.

The next year or two could be very interesting regarding pay issues. Credit EEOC with scoring some early points just by making the proposal for the reporting rule. Law firm blogs and newsletters covering the rule are urging clients to examine their pay practices now (under attorney–client privilege), well in advance of September 2017. The irony, of course, is that the data might show little worth pursuing, because the egregious discrepancies (if any) have been fixed by the time a charge could be filed. But that would not be a bad thing.

And on a personal note, let me say that it was a privilege and a pleasure to have served my legal watch under our outgoing *TIP* Editor **Morrie Mullins.**

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## SIOP Government Relations Introduces the Policing Reform Initiative to Congressional Staff

***Expanding the Impact of I-O Across the Federal Government***

**Seth Kaplan**
George Mason University

**Laura Uttley**
Lewis-Burke Associates LLC

In February, SIOP President-Elect **Jim Outtz** joined Lewis-Burke for a series of meetings with representatives from Capitol Hill and nongovernmental organizations to highlight the impacts and applications of I-O evidence-based research on policing reform, to urge stakeholders to apply I-O research to related policies and programs, and to position and promote SIOP as a collaborator and resource for these organizations going forward.

The meetings were part of a nearly year-long comprehensive initiative that began with a discussion led by Lewis-Burke at the April 2015 Annual Conference. During the conversation, Dr. Outtz proposed developing a government relations initiative on policing as a way to apply I-O to an active federal policy debate by leveraging SIOP members' research on police recruitment and selection processes, leadership, individual and organizational decision making, and training. Following the meeting, Lewis-Burke began working with Dr. Outtz to create a working group to coordinate I-O efforts in this space and consider evidence-based solutions to complex policing challenges.

In June 2015, SIOP and Lewis-Burke facilitated the first working group call, including SIOP members **Dr. Frederick Oswald, Dr. Michelle Hebl, Dr. Kevin Ford, Dr. Daniel Newman, Dr. Leaetta Hough, Dr. Cindy McCauley,** and **Dr. Ann Marie Ryan**. Over the next several months the working group held several more calls. During the discussions, Lewis-Burke contributed updates on policing concerns and solutions discussed by members of Congress; the Obama Administration and federal agencies; and nongovernmental stakeholders—such as the National Academies of Sciences, Engineering, and Medicine—while SIOP members considered relevant I-O research and models to address these issues. Through this process, Lewis-Burke and SIOP developed a strategy to draft a series of guidance documents that categorized I-O findings in key areas, such as police recruitment and selection processes, leadership, and training to share with and inform key federal decision makers

identified by Lewis-Burke. In January, the guidance documents were finalized and posted on the SIOP Government Relations website, which set the stage for the advocacy meetings.

The first wave of meetings facilitated by Lewis-Burke were with a number of bipartisan, bicameral congressional offices that have been heavily involved in the ongoing conversation over policing reform, including the offices of Senator Ben Cardin (D-MD), Senator Roy Blunt (R-MO), Rep. Jim Sensenbrenner (R-WI), and Rep. Elijah Cummings (D-MD). The meetings were a complete success, as staff from each office expressed interest in learning more about the I-O-backed solutions outlined in the guidance documents and pledged to consider engaging SIOP as a consultative resource in future discussions on policing reform. The second wave of meetings included discussions with Democratic staff from the House Judiciary Committee; Republican staff from the Senate Judiciary Committee; and Poornima Madhavan, director of the National Academies of Sciences, Engineering, and Medicine Board on Human-Systems Integration (BOHSI). Lewis-Burke and SIOP will continue to interact with these offices and maintain the relationships built through these meetings.

Over the past year, the federal conversation on policing reform has proven to be an enduring topic that has sparked various reviews of policies and programs and reformed guidelines from federal agencies, bipartisan congressional hearings and legislation, and numerous reports and discussions held by think tanks and stakeholder organizations. It was also mentioned in the President's 2016 State of the Union address, as well as on the presidential campaign trail. The stakeholder meetings affirmed that there is a desire for more information and consideration of evidence-based solutions to complex issues on policing, and through the efforts of SIOP's working group on policing, the Society is well-positioned to continue to advocate for the consideration of I-O in future discussions.

In addition to providing a voice in the federal discussion on policing, SIOP's convening of a topical working group that promotes prolonged membership engagement and focuses on a key government relations initiative will provide a lasting framework for future advocacy initiatives. The success of this endeavor opens the door for new opportunities to bridge member interests with federal policies and the development of an active base for government relations activities at SIOP.

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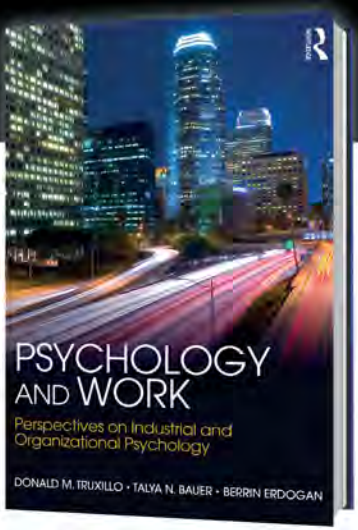
# PSYCHOLOGY AND WORK

## Perspectives on Industrial and Organizational Psychology

DONALD M. TRUXILLO • TALYA N. BAUER • BERRIN ERDOGAN

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- Sections discussing global and current issues give students a sense of what's happening in the I/O psychology field

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The Modern App

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**Application of Modern Technology and Social Media in the Workplace**

**Nikki Blacksmith**
The George Washington University

**Tiffany Poeppelman**
LinkedIn

## Past, Present, and Future of Technology and Social Media in the Workplace

Over the past 3 years, we've highlighted technology and social media trends in this column that were having a large impact in the workplace. Those key trends included big data, adaptive training, virtual reality, gamification, simulations, and social media, as well as virtual communication and teamwork. Every so often, we find it's important to step back and reflect in order to learn and prepare for the future of the field. This issue will cover the trends we've seen since the inception of *The Modern App* that we believe are here to stay. We also provide suggestions for how you can learn more about these topics!

### #1 SIOP Trend of the Future: Big Data

In our October of 2013 issue, we wrote about big data, explaining how organizations were beginning to use big data to recruit, retain, and manage employees throughout their journey at a company. In addition, we explored how big data was being leveraged to create customized, and personalized learning experiences based on one's knowledge or skill set. Our research and experience in this area has shown that the availability of big data is changing the way I-O psychologists are thinking about the next generation of selection and training. For more information about adaptive training trends, be sure to check out our April of 2015 issue.

When looking at the trends today, we feel confident to say: Big data is here to stay! By examining the #1 SIOP workplace trend this year "Leveraging and Maximizing Big Data and Applying the Correct Analytics to Make Better Business Decisions," we can see other I-O psychologists would agree with this assessment. For the full list of 2016 workplace trends, check out the official SIOP list.

Excitingly, this year at #SIOP16 there are eight big data presentations and workshops alone. These sessions will highlight the use of big data and how it will continue to advance our thinking on many topics such as recruitment, retention, performance management, and even leadership, which is typically characterized by smaller data (Wiita, Dollwet, Harrell, Rodda,

& Strange, 2016). In addition, new prediction models and algorithms will be shared, such as random forests and gradient boosted trees, which are being leveraged to help I-O psychologists handle big data. We will also learn about new methods of gathering big data, such as theory-driven web scraping, which are also emerging (Cavanaugh, Brusso, Collmus, & Landers, 2016).

One particularly exciting technological advancement in the big data arena is the metaBUS project. In order to make this a reality, many I-O psychologists have come together to develop a cloud-based technology tool for finding, curating, synthesizing, and disseminating research findings based on nearly one million correlations reported in I-O psychology journals within the last 25 years. We highly recommend reading the recently published article that was included in a new open-access I-O journal called *Personnel Assessments and Decisions*.

Even though we are learning a ton about (and from) big data, we as a field are still challenged with several issues regarding measurement, analysis, validity, and legal consequences. I-O psychologists must strive to understand how to gather and analyze big data to keep up with organizational practices.

If you're interested in learning about big data and how to use it, you're in luck! Below are a few ways in which you can deepen your knowledge:

- Revisit the discussion from our first #SIOPchat on Twitter, which took place on March 1, led by **Richard Landers** (@rnlanders). You can either search the Twitter feed or read the summary of that discussion at my.siop.org/chat. The forum is similar to Ask Me Anything (AMA) on Reddit.
  - How it works: You participate by following the hashtag #SIOPchat during a designated day and time and hear from speakers talking about a specific topic. You can either read and follow, or engage and ask! Simple as that.
  - Be sure to join us on **Saturday, April 16 at 2:30 PM PT** to ask questions and discuss our annual conference with SIOP Conferences and Programs Officer **Evan Sinar** (@evansinar)!
- Attend any of the #SIOP16 big data presentations this year in Anaheim and connect with other experts in the space to see what type of research they are conducting and learn about their previous research findings.
- Sign up for a master tutorial on Thursday and a seminar on Friday at #SIOP16 that will teach you how to conduct big data predictive analytics using R.
- Attend SIOP's Leading Edge Consortium in October of 2016, which will be focused on—you guessed it—big data! At the consortium, experts will explore and discuss technologies for gathering data, new analytic methodologies, and new approaches for displaying and exploring data.

**Technology-Enhanced Assessment**

Throughout most of our issues, we've highlighted the evolution of testing and assessments due to new technologies and applications being used in recruitment, hiring, and promotion. Virtual reality, gamification,

and simulation trends are continuing to take shape at rapid pace and are embedded into workplace practices. For example, many organizations are using virtual reality or simulations to not only assess whether the applicant can do the job or fit in with the organization but also to provide applicants with a realistic job preview (Winkler, 2006). This gives applicants a better preview of what it would be like to work for that organization and determine whether they think they might enjoy working in the organization. Ideally, applicants who do not believe they will a fit with the job or organization will self-select out of the application process, and the ones that do see a fit will continue through recruitment process. In turn, organizations should expect an applicant pool with more qualified applicants. Simulations are more recently being developed for virtual assessment centers, which are almost always conducted as in-person events. Check out some demonstrations of simulations being used in organizations: sample demos. You can also watch a video about how one organization, Swarovski, uses avatar-based assessments.

Our October of 2014 issue focused on how video-based technology is being leveraged to enhance recruitment and selection processes. Organizations are using videos as a recruitment tool to show short clips of the organization and what it is like to work there as well as using video conferences to communicate with applicants. Video technology is used in selection in several ways. Applicants are now creating video resumés, video-based situational judgment tests, prerecording a video in which they answer a set of interview questions as well as video conferencing to conduct interviews.

New technologies are not only changing the way individuals interact and communicate with and within organizations, they are also creating new measurement and administration challenges. For example, in virtual reality assessments, applicants are no longer responding to a single item but rather interacting with a more complex and more realistic workplace environment. This change presents difficulty in teasing out the specific constructs that one wishes to measure. New technologies can also introduce other visual components that affect applicant performance. For instance, Skype interviews have a picture-in-picture component that allows applicants to see themselves in an interview, which can increase cognitive load (Horn & Behrend, 2016). Internet testing, which we discussed in our October of 2015 issue, presents opportunities for cheating and piracy.

Even though measurement challenges are present, we are learning it is possible that new technologies can address concerns with more traditional paper and pencil tests. For example, a recent study by Tenbrink, Delgado, and Kinney (2016) provided evidence that simulation-based cognitive ability measures have smaller subgroup differences while maintaining comparable validity to traditional measures. All in all, much empirical evidence is still needed to support the validity and use of these assessments. Also, a greater understanding of applicant reactions to these assessments is needed. We have a lot of work ahead of us to provide best practices in developing psychometrically sound assessments using virtual reality technologies, but the benefits of these tools are promising!

At #SIOP16, you will have the ability to attend several sessions related to these topics, including but not limited to:

- 3D Virtual Games and How They Can Increase Learning of Business Ethics (Jagger, Nguyen, & Sloan, 2016)
- A Meta-Analysis of Virtual Reality Hardware, Software, and Participant Populations (Howard, Lee, Dogru, Rose, Mahla, & Millard, 2016)
- A Theory of Training-Technology Fit and Virtual Reality: A Meta-Analysis (Howard, Lee, Rose, Dogru, Millard, & Mahla, 2016)
- Acquisition of KSAOs Through Online Games and Virtual Team Collaborations (Siriabian, Weidner, & Prewett, 2016)
- Extending the Uncanny Valley Theory to Simulations (Lee et al., 2016)
- Going Mobile: Empirical Evidence From Higher-Fidelity Mobile Simulations (O'Connell et al., 2016)
- Meaningful Gamification in an Industrial Organizational Psychology Course (Earnest & Stansbury, 2016)
- Simulation Games and Their Effectiveness in the Socialization Process (Howard, Rose, Dogru, Millard, Mahla, Gui, & Lee, 2016)
- Using Gamification to Improve Training Reactions and Learning (Armstrong & Landers, 2016)
- Validity of Simulation-Based Cognitive Ability Measures (Tenbrink, Delgado, & Kinney, 2016)
- Video Killed the Interview Star: Does Picture-in-Picture Affect Interview Performance? (Horn & Behrend, 2016).

**Social Media in the Workplace and I-O Field: Still Going Strong!**

In our July of 2014 issue, we highlighted ways in which social media has changed the recruitment landscape. Since then, we've continued to see social media penetrate organizations, shape policies and decisions from obtaining and selecting talent, and create an organizational online branding through outreach. This is highlighted through this year's #10 workplace trend "Using Social Media to Make Employment-Related Decisions." Several SIOP sessions this year will aid in moving this conversation forward.

There is no doubt that in the future, organizations will continue to use social media to make decisions and drive organizational practices. One of our greatest challenges as #SIOP members will be to help organizations use social media in a responsible and ethical manner (especially in the hiring context) based on empirical support.

***I-O Psychology Branding Through Social Media***

We would be remiss if we did not mention the importance of social media in the visibility of SIOP and I-O psychology. In our January of 2014 article, we described how we can use social media to increase our visibility as I-O psychologists and in turn help create greater awareness for the I-O field. We are delighted to say that there is firm evidence showing an increase in our presence on social media! Don't believe us? Check out **Paul Thoresen's** *"80 #IO-Psych Pros to follow on Twitter."*

Although the number of I-O psychologists discussing I-O related matters on social media has greatly increased, we think there

is still more work to be done to build our brand as the "visible and trusted authority on workplace psychology" (Reynolds, 2013). Please be sure to keep posting and using our two core hashtags: #IOPsych and #SIOP.

Want to learn more about social media best practices and/or contribute to building our brand?

- Attend top social media sessions at SIOP:
  - Developing a Structural Framework for Social Media Assessments in Hiring (Hartwell & Campion, 2016)
  - Social Media Strikes Selection: Challenges of the Technological Era (Mills et al., 2016)
  - Social Media for Employment Decisions: The Risk, Reward, and Unknown (Chambers et al., 2016)
  - Social Media and Ethics: The Role of Context and Personality (Chauan & Connelly, 2016)
  - Last, Be sure to attend "*Tweet, Post, and Link: Creating a Presence and Brand Online*" and say hello to Tiffany!
    - This session will provide practical guidance for using LinkedIn and Twitter to develop an online presence and increase the visibility of I-O psychology! She will be delighted to discuss this issue which we highlighted in a past column or any other social media questions you might have!
- Share your SIOP presentations, research findings, and favorite conference moments using #SIOP16!
- Last, stop by the ECC Social Media table at SIOP. We will be near the wifi lounge so come by to gather fun swag and learn about ways you can stay informed through social media.

**Virtual Communication and Teamwork: Evolving Workplaces**

In our January of 2015 issue, we wrote about virtual teams in which we shared several technologies available to improve virtual communication and collaboration. In addition, we highlighted that one of the most immediate issues requires leaders to gain a new understanding of how to manage virtual teams. As we've seen through our own experiences in practice, virtual work continues to increase in prevalence. With the increase in virtual work also comes both improvements and challenges in collaboration and communication.

With no surprise, coming in at #3 on SIOP's Top 10 Workplace Trends of 2016 is "*Managing Virtual Teams"* as well as #2 which focuses on "*Trends in Technology Are Changing the Way Work Is Done*." There is no room for debate—organizations are becoming increasingly reliant on technology. We are likely to continue to see this trend, particularly with regards to the use of technology-mediated communication in all aspects of the talent management process including recruitment, selection, training, and performance management.

Want to learn more? Check out the related #SIOP16 presentations that will help advance our understanding of virtual work including:

- Shared leadership in virtual teams (Hoch & Dulebohn, 2016)
- Trust in virtual teams (Coovert, Miller, Bennett, & Martin, 2016; Lee & Coovert, 2016)
- Acquisition of KSAO's Through Online Games and Virtual Team Collaborations (Sirabian, Weidner, & Prewett, 2016)

***Other Virtual Relationship Trends***

Another type of impact we are seeing across these virtual workplaces and systems is a shift in the performance management technologies that are supporting organizational practices such as coaching. In our January of 2016 issue, you will find examples of the types of technologies that exist now which are enabling new approaches to growing our managers and teams within the workplace, both virtually and in-person.

**Conclusion**

As always, moving forward we must work hard to bridge the science–practice gap that still exists in the workplace. The great news—we as I-O psychologists can work together to improve our research and practice with regards to technology in the workplace. Below are two key areas of focus that we believe can make the difference:

***Develop a Comprehensive Framework***

In research, we need to continuously strive to create a framework that addresses the technological attributes rather than the type of technology if we want to gain a deep understanding of how technology impacts the workplace. For instance, Potosky (2008) has developed an initial foundational framework to understand technology in the assessment process of which we can expand. This year at SIOP, I-O psychologists such as Neil Morelli, Seymour Adler, Winfred Arthur, Denise Potosky, and Nancy Tippins are leading the charge on developing such a comprehensive framework.

Anyone interested in joining forces or who is already conducting research involving technology should attend their session "*Developing a Conceptual Model of Technology Applied to I-O Psychology*" to hear about the creation of a comprehensive framework to help create *a priori* hypotheses and grounded predictions.

***Continue to Engage in Interdisciplinary Work***

For those of us who've had the privilege of working with cross-functional partners across various disciplines like software developers, computer programmers, and human factor engineers, we know communication and collaboration is critical. In our April of 2014 issue, we highlighted methods and best practices for I-O psychologists to partner effectively with these teams.

Given each of these fields have its own language and focus, there still remains a set of barriers and challenges given the complexity of the range of field partners. Some barriers highlighted include miscommunication, lack of a clear vision, or shifting of tasks. By focusing on gaining shared mental models and clear understanding of project goals, we can ensure the rigor and research is built into the technologies that are used in the workplace. Two examples of good collaboration include pulling the right performance data within training technologies, systems and simulations, or leveraging the correct models to assess candidates in a selection tool.

Looking to learn more? Check out the *"You're the "I" to my "O": Developing Successful Interdisciplinary Experiences"*

session at #SIOP16 to learn about ways I-O psychologists can benefit from engaging in interdisciplinary research and build networks across domains!

As we can see, these and other related topics will continue to emerge and morph over the years to come. We are certainly excited to continue following the trends at our annual conference as well as on through our social media channels!

**New Changes to the Authors of *The Modern App:***

***To our readers*:** It is with mixed feelings that we share that this will be Nikki's last issue as the coauthor of *The Modern App*. As Nikki makes her next play into the world of academia, we wish her well and hope to bring her back for the occasional issue on technology and social media with regards to recruitment, selection, or assessment. ;)

However, we are delighted to share that Evan Sinar will be stepping in as the new coauthor of The Modern App! Please join us in welcoming Evan!

***A word from Evan:*** I'm excited for the opportunity to join Tiffany for future installments of the Modern App! In my role as a I-O practitioner, I've seen technology advance from a way to merely replicate traditional processes in electronic form (think the earliest days of online testing), to opening nearly infinite possibilities for what we measure, how employees learn, where and when work gets done, and who we partner with to optimize I-O tools for end users and business stakeholders (e.g., programmers, graphics designers, user experience experts). Through my role working with the SIOP Conference, I've also seen technology surge to become a distinct and popular session topic, after only 2 years as its own content area becoming the 13th-ranked (out of 34) topic on the 2016 program. In the previous pages, Nikki and Tiffany have adeptly summarized an incredible 3 years of technology shaping I-O (and vice-versa). I look forward to sharing my commentary and viewpoints on what's sure to be a never-dull ride through the next 3!

***A word from Nikki*** - First and foremost, thank you to all of our modern app readers and to my dear friend and colleague, Tiffany! It's been a fun adventure writing with Tiffany and following all the exciting work coming from the I-O experts in technology and social media! I've very much enjoyed writing over the past three years and look forward to reading the column as Tiffany takes it forward. Please stay in touch and let me know what trends you are seeing in your research and workplace!

**Nikki & Tiffany at #SIOP14 #memories**

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Contact the authors on Twitter: @NikkiBlacksmith, @TRPoeppelman, & @EvanSinar

For a full list, below is the timeline of our columns together over the past 3 years:

- The Modern App hits the press! - July 2013 Issue
- Big Data Technologies- October 2013 Issue
- Personal Branding - Jan 2014 Issue
- Multidisciplinary Teams - April 2014 Issue
- Social Media & Tech Change Recruitment - July 2014 Issue
- Video-Based Technology - Oct 2014 Issue
- Virtual Workplaces - Jan 2015 Issue
- Adaptive Training - April 2015 Issue
- A Year in Review - July 2015 Issue
- Internet Testing - Oct 2015 Issue
- Performance Management Tech for Organizational Coaching - Jan 2016 Issue

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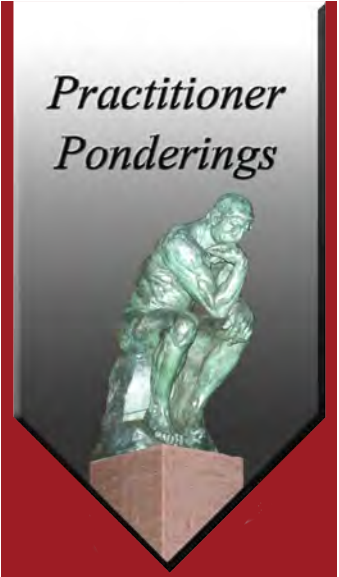
Contents | Features | Editorials | Reports | my.SIOP




# Learning and Development

The first two columns that I wrote "set up" the science–practitioner issues, and the next three addressed three of the five significant ways in which I-O contributes to the employee lifecycle:

- June 2015: **Performance Management**
- September 2015: **Staffing**
- January 2016: **Strategy and Measurement**

This column will tackle the issues related to **learning and development** and the July *TIP* will address **talent management**. To find how I-O contributes to all five employee lifecycle areas, from the SIOP website, click on "**Professionals**" and you will see "**I-O and the Employee Lifecycle.**"

Many great contributions of psychology to **learning and development** are well chronicled by David Kolb in *Experiential Learning* (2015), which is the 2nd edition of a book originally published 30+ years ago—reflecting some of the early contributions of experiential learning experts such as William James, Kurt Lewin, John Dewey, Jean Piaget, Carl Jung, Carl Rogers, Abe Maslow, Eric Erikson and Mary Parker Follett. In the foreward, Warren Bennis writes (in one of his last writings prior to his passing):

> Kolb's achievement is in providing the missing link between theory and practice, between the abstract generalization and the concrete instance, between the affective and cognitive domains. By this BIG achievement he demonstrates conclusively—and is the first to do so, that learning is a social process based on carefully cultivated experience which challenges every precept and concept of what nowadays passes for "teaching". And with this major achievement he knowingly shifts the ecology of learning away from the exclusivity of the classroom (and its companion, the Lecture) to the workplace, the family, the carpool, the community, or wherever we gather to work or play or love. [Foreward, page X]

**Richard M. Vosburgh**
RMV Solutions LLC

Now I have to confide that I thought everyone already knew about this "learning through experience" thing a long time ago because between 1971–1975, I attended and graduated from New College in Sarasota, Florida (the last year it was still a private school). In those 4 years I never took a multiple choice test (I had to move on to graduate school to have that experience again). The professors (who mostly lived on campus) would not have survived if they just stood up and lectured. Almost every on-campus "house" had a "living-learning community," and every student every quarter would get faculty approval for the learning contract that documented the student's commitment for the quarter. It would usually involve some mixture of class, tutorial, special project, internship, or "experience." No grades; you simply passed or failed your contract.

One such "learning from experience" quarter for me in 1972 was hitchhiking around the country and keeping a journal of my experiences and what I was learning from it; and oh, yes, reading all four volumes of Joseph Campbell's *The Masks of God*—a deeper dive on the meaning of life cannot be had. Then in 1973 I did a 6 month "off campus study project" when a fellow student's dad funded our development of a one acre, 10,000 plant commercial hydroponics farm in Perrine, south of Miami. Picture a swimming pool with nutrient solution that pumps through PVC pipes and tubing into 10,000 plastic bags filled with vermiculite, peat moss and sand; and picture all 10,000 plants performing strongly because if one is not, you rip it out and replace it with one that is performing. We had to learn everything from agricultural science to construction to sales and marketing because we sold the produce to local grocery stores. Yes, I kept a journal on what I was learning, which was a lot—including why farming is so difficult. It was frustrating after such great success, 8 months into the project a freak hailstorm destroyed everything. More learning.

During my graduate school years at the University of South Florida, our I-O psychology program (under my major professor **Dr. Herbert H. Meyer**) had a partnership with a new organization in North Carolina—The Center for Creative Leadership (CCL). I visited there in the late 1970s and then got very involved with them during my Pepsico years (1981–1990) because the leader of Management Development in Pepsico was Dr. **Bob Eichinger**, and he had a developing relationship with Dr. Mike Lombardo at CCL (which culminated many years later in their firm Lominger which they later sold to Korn Ferry). CCL was instrumental in focusing on the critical importance of learning from experience, and their contribution to the literature on this issue is nothing short of huge. CCL has published many books providing guides on how to learn on the job and from experiences (e.g. *FYI for Your Improvement* [2006] and *Eighty-Eight Assignments for Development in Place* [1989] by Lombardo and Eichinger; *Developmental Assignments: Creating Learning Experiences Without Changing Jobs* [2006] by **Cindy McCauley).**

As the current chairman of the board at HRPS (www.hrps.org), I have had the

chance to work with some great people over the last 20+ years, one being Dr. David Miller who served on the HRPS board from 2009–2013. In 2000 at Duke University he was a founding member of Duke Corporate Education. For over 13 years David helped provide companies with a customized learning and development resource that combines highly accomplished business practitioners, academics, and alternative learning methods. They must have been doing something right because they were ranked #1 worldwide in custom executive education for the last 10 rankings, according to *Financial Times* and *BusinessWeek*. David helped grow the company from an $8M base in 2000 to a $70M corporation in 2008. He would collaborate with key corporate executives to help design solutions that address their company's most pressing human capital development challenges. Presently, he is principal of Ashby Street Advisory. I reached out to David and asked for his perspective on learning and development within organizations, and he graciously offered the following.

In thinking about the evolution of learning and development over the past decade and a half it is easy to see lots of changes, as there have been in every other field. To think about learning and development we have to first understand what it is we want people to learn, and what abilities we want them to develop. It could be argued that "leadership development" is a subcategory of learning and development, and as such it has offered some clarity around the changing nature of learning and development. Duke Corporate Education's 2013 CEO Study, entitled "Leading in Context," gives a really good discussion of some of these changes. For this discussion let's call them mega changes, of which there are at least three.

The first of these mega changes is the sheer complexity of being an employee in a large global (or even a small regional) organization. Needed knowledge is increasingly multidimensional. Much learning of course is technical and determined by the business needs of the organization; but a growing amount of important knowledge is tacit, things learned outside the normal channels of business activity. This is precisely in the realm of experiential learning. Think of the many times where a business strategy and tactics needed to be changed as a consequence of developments in a completely different field. The impact of cell phones on credit cards and banking comes to mind. Or the influence of wireless communication on automobile interiors.

A second significant sea change has been in the way we conceptualize the resolution of problems. A fabulous treatment of this issue is provided in David Dotlich's *The Unfinished Leader* (2014). Much of what we are asking employees to learn and develop does not have an acknowledged end point. Imagine the difference between solving a problem, which ostensibly has a solution, and wrestling with a paradox, which does not. Accepting that learning and development is never complete leads one immediately into the realm of judgment and intuition; again the space of experiential learning. A great example is the topic being discussed here; the organization that arrives at the point of believing that learn-

ing and development are "done" will be sorely disappointed.

A third and final mega change has to do with the nature of the learners themselves. An excellent starting point to examine this notion is Daniel Pink's 2011 book *Drive*. Long gone is the passivity of learners showing up for whatever course HR has created. Employees, especially young ones, have strong opinions about their own development, and about meaning and purpose in their lives. This has been driven by very bad corporate behavior of the past several decades, the corporate social responsibility movement, the multicultural nature of societies, and growing global inequality.

So what does this mean for organizations and the role of I-O psychology within them? Richard's 2015 articles in *TIP* outline the long involvement of I-O psychologists in some organizations, though sadly this has been far from universal. Many organizations still do not see human capital development as a top priority. In my experience learning and development is a corporate responsibility that simply cannot be outsourced; it is too intertwined with the organization's culture, its ultimate purpose, and its level of employee engagement. The most effective and most cost effective model is to have an appropriately sized cadre of internal I-O psychologists who are capable and excited about engaging in the trenches but who also have a solid connection back to academia.

Toward the end of this column, Richard offers seven ways in which I-O psychologists can benefit organizations in the employee lifecycle. Of particular importance, from my perspective, are program (or project) design, leadership development, and executive coaching. Design is critical because it invariably presages project success. Leadership development is essential, and today most organizations admit they do not have in place the leadership talent to execute their current business strategies (to say nothing of future strategies). Good executive coaching often makes the difference in leadership performance. Just as clinical psychologists often choose a colleague to be a "supervisor," someone to serve as a mirror and to discuss tactics, performance, and difficult circumstances, so should senior organizational executives.

Another perspective comes from David Wentworth and Mollie Lombardi of the Brandon Hall Group in a 2014 article in *Training Magazine* entitled "5 Trends for the Future of Learning and Development." They conducted a study with 569 organizations and identified the following trends and ongoing issues:

- **Going mobile.** Mobile has transformed the way companies work, interact, and collaborate. Despite this, companies are still slow to embrace mobile learning solutions, with only 10% using mobile Web-based learning solutions.
- **Understanding social.** Companies are embracing social media and social collaboration tools to engage employees and build a culture of learning. However, of the 59% of companies using social for their learning strategies, relatively few (24%) say they are effective.

- **Considering adaptive learning.** Adaptive learning lets employees learn at their own pace. They can be monitored individually, in real time, to determine the learning approach that best suits their needs. This takes considerable skill and time to accomplish.
- **Aligning with business objectives.** "Training" has operated in silos with little input from other areas of the business. Training in the future must be closely aligned with corporate strategies to help companies achieve results. Of companies aligning learning and business priorities (48%), more than 70% improved company revenue.
- **Measuring effectiveness.** To determine if a learning strategy is driving business outcomes, companies must consistently measure its effectiveness. Many companies tend to consider employee satisfaction over more concrete business metrics such as turnover, retention, or financial measures.

The information in the next few paragraphs is presented on the SIOP website to help us better understand how I-O psychology can benefit organizations in each phase of the employment lifecycle. The SIOP website points out that learning and development in organizations can be greatly improved based on what we have learned through the science of psychology. Learning and development helps organizations build and maintain internal capabilities so they can successfully execute their strategies and often includes:

- Identifying key employee skills and abilities
- Defining the methods for teaching and acquiring necessary skills and abilities
- Training program design and delivery
- Leadership assessment and development programs
- Internal and external executive coaching
- The metrics used to assess each of these programs.

Organizational outcomes that can be influenced by high quality learning and development programs include:

- ***Improving the bottom-line performance*** of the organization by giving employees the skills needed to excel;
- ***Reducing external recruiting costs*** by developing internal employees and preparing them to take on greater leadership roles;
- ***Increasing employee retention*** by visibly demonstrating to employees an investment in their career development and growth.

**How Can I-O Psychologists Help?**

1. ***Facilitation.*** I-O psychologists can help senior leaders articulate business objectives and identify the key employee skills and abilities required to execute the organization's business strategies.
2. ***Defining the need.*** I-O psychologists can conduct analyses to determine the most prevalent employee skill gaps in an organization in order to prioritize the content and focus of training programs.
3. ***Building the learning strategy and frameworks.*** I-O psychologists can help organizations create systems and approaches that align training and

development programs with business goals (e.g., driving revenue).

4. ***Program design/delivery.*** I-O psychologists can design and deliver training content to meet the particular needs of an organization, identifying and focusing on areas where skill gaps exist and adapting messaging and content to the organization's culture and goals.
5. ***Leadership development.*** I-O psychologists are uniquely qualified to develop programs and processes that enable participants to build and improve leadership skills. This includes but is not limited to the use and interpretation of personality and skill-based assessments, assessment centers, instruction, role plays, and action learning assignments.
6. ***Executive coaching.*** I-O psychologists serve as seasoned and credentialed professionals who work with individuals and teams to help them learn, grow, and change. Coaching engagements may focus on imparting specific skills, addressing performance issues on the job, preparing for and facilitating transitions to higher levels of leadership, or supporting broader changes in individual and group behavior.
7. ***Performance and program metrics.*** Using a results-oriented approach, I-O psychologists can assess the effectiveness of learning and development programs and track individual learners' achievements as a result of program participation.

Unquestionably, I-O psychologists working with human resources and leadership teams can make a big difference in providing organizationally relevant learning and development programs and experiences that contribute to the goals of the organization and help deliver expected results for the stakeholders.

I invite feedback at rmvsolutionsllc@gmail.com.

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**Milton D. Hakel**
SIOP Foundation
President

# Announcing the Schmidt-Hunter Meta-Analysis Award

**Frank Schmidt** has provided the leadership to create a new endowment in the SIOP Foundation. The Schmidt-Hunter Fund will support the Schmidt-Hunter Meta-Analysis Award. It will recognize the best advances related to industrial and organizational (I-O) psychology as documented in published research in which meta-analysis is used. The new award will be given by SIOP for the first time in 2017.

Let's start with some comments about our history and our aspirations for I-O practice and science. My generation entered the field when Thomas Kuhn was writing *The Structure of Scientific Revolutions* (1962). Already well aware of the role of peer review and consensus in scientific progress, I was attracted by the notion of a paradigm shift, and I hoped that I could experience one during the course of my career.

Back in the '60s and '70s, it was clear to us that validity correlations varied a lot, and we easily attributed that variation to situational differences. When Frank Schmidt and **Jack Hunter** began writing about validity generalization, and attributing the variance in validity correlations to statistical artifacts, we were deeply skeptical, but indeed a paradigm shift had begun.

Decades later the acceptance and widespread use of meta-analysis marked the completion of the paradigm shift, and meta-analysis now is a fundamental tool that we use readily to refine our scientific thinking and practical applications. At the SIOP Conference in Philadelphia last year, Frank received the inaugural Dunnette Prize, clear and distinct recognition of the immense contribution to our field and science in general made by Frank and Jack's work.

Looking to the future, the Schmidt-Hunter Award will recognize the best meta-analysis published in the previous 3 calendar years. The meta-analysis can be in any area of I-O psychology or in another discipline or sub-discipline if there are potential implications for I-O psychology, even if such implications are long term or remote. Articles that make important contributions to statistical, measurement, and mathematical methods in meta-analysis can also be considered for the award. Nominations may be made by any current member of SIOP and may be self-nominations. The award will be given each year and will carry a cash honorarium of $1,500.

Now for some comments about philanthropy, one important practice for building our field of applied science. Paradigms shift rarely, and indeed they are built upon the day-to-day R&D conducted within the field. Frank's paradigm-shifting scholarship and also his generosity in establishing this $75,000 endowment are outstanding examples for each of us.

Regardless of whether you are engaged in day-to-day R&D or the shifting of paradigms, there will never be a better time than now to give your time and money. Help to encourage practice and research based on cumulative evidence; it is the key to the future of I-O psychology. The SIOP Foundation would like to be among your beneficiaries. Contribute at http://www.siop.org/foundation/donate.aspx.

Set a plan and act on it. Frank Schmidt did, and you can too. Your calls and questions to the SIOP Foundation are always welcome, as are gifts of any size. Join us in building the smarter workplace.

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# Resources for I-O-Psychologists


Marco Behrmann

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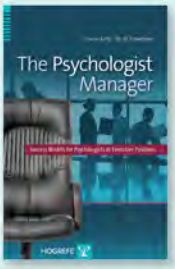


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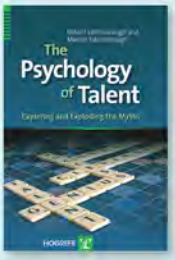


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# Analysis "Back in the Day": The Early Career Experiences of Nine I-O Psychologists

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*Note. The views expressed in this paper are those of the authors and do not necessarily reflect the views of U.S. Customs and Border Protection or the U.S. federal government.*

The availability of the personal computer (PC), statistical software, and the Internet has had undeniable effects on I-O psychology. Without such technological advances, for instance, there'd be no virtual teams, no computer-adapted testing, and no cyberloafing. To better appreciate the impact of technology on the current state of our discipline, it's helpful to reflect on the technology used in the recent past. In preparing this installment of the History Corner, we interviewed nine seasoned I-O psychologists: **Terry Beehr, Ilene Gast, Lawrence Hanser, Milton Hakel, Norman Peterson, Susan Reilly, Neal Schmitt, Paul Thayer,** and Lauress Wise. We asked them each to describe the technology they used during their early careers to conduct data analysis, and we asked them to reflect on how technological changes have affected the way in which I-O psychologists conduct research. In the following sections we discuss how calculators, early computers, and PCs were used "back in the day" to conduct data analysis. We then discuss how I-O psychologists wrote their research reports prior to the advent of PCs and word processing programs.

## Conducting Statistical Analyses Using Calculators

Many of the interviewees told us that they conducted statistical analyses using calculators, especially for small datasets and for class assignments. Thayer told us that he conducted his doctoral work in the early 1950s in Dr. Herbert Toops' lab at Ohio State University. Toops had a mechanical hand-crank calculator in the lab that looked like a typewriter and had a crank that the user would move forward for addition and multiplication and backward for subtraction and division. The psychology department had a calculator lab, with about 20 machines that graduate students could use for their research. Statistics classes would often have lab sessions in the calculator lab, and Thayer remembers his fellow students having races to see who could do their calculations the fastest. According to Thayer, the calculators at Ohio State University were of the Marchant brand (another common brand was Friden). A pic-

ture of a Marchant hand-crank calculator is shown in Figure 1. Using the calculator was laborious as there were often mistakes in the calculations and data entry, which required the user to start over. These calculators had no memory and no printout; thus, there was no record of what took place other than what the user wrote down.

*Figure 1.* This is a Marchant H9 Calculating Machine. The user would input the numbers for the calculation using the keyboard; the numbers that were entered would appear in the row of nine dials in the upper right corner of the machine. There is a crank on the right side of the machine that was used to conduct the calculations. The user would rotate the crank forward for addition and multiplication and backward for subtraction and division. The results of the calculation would appear in the row of 18 dials directly above the keyboard. (Image is from http://americanhistory.si.edu/collections/search/object/nmah_690715 and appears courtesy of Kenneth E. Behring Center, Division of Medicine & Science, National Museum of American History, Smithsonian Institution.)

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An early type of calculator—the "four-function calculator"—could only perform four mathematical functions: addition, subtraction, multiplication, and division. Many statistical and psychometric equations require calculating the square root of a number. Hanser told us of an iterative algorithm he knew of to get an approximation of a square root, which is illustrated in Table 1. There were other tricks of the trade for simplifying statistical computations. Wise, for example, told us that it was possible to get the squares and sums of squares in a single step using a Marchant calculator by entering the data as a nine-digit string (e.g., to obtain the sums of squares and crossproducts for the numbers 4 and 10, enter 004000010 and square this number to obtain 16,000,080,000,100, or 16[$4^2$], 80[2×4×10], and 100 [$10^2$]).

Table 1

| Step | Procedure | Input | Output |
|---|---|---|---|
| 0 | Start with a guess of the square root of .92[a] | 0.94 | |
| 1a | Divide .92 by the guess | $.94\overline{).92}$ | 0.979 |
| 1b | Obtain the average of the divisor and the result | $\frac{.979 + .94}{2}$ | 0.96 |
| 2a | Divide .92 by the average | $.960\overline{).92}$ | 0.958 |
| 2b | Obtain the average of the divisor and the result | $\frac{.960 + .958}{2}$ | 0.959 |
| 3a | Divide .92 by the average | $.959\overline{).92}$ | 0.959 |
| 3b | Obtain the average of the divisor and the result | $\frac{.959 + .959}{2}$ | 0.959 |

The introduction of square-root handheld calculators represented a major convenience for researchers. In fact, Beehr received one as a Christmas gift in the 1970s; it cost approximately $100. Gast told us about her experiences using HP statistical calculators in the 1970s, such as the one shown in Figure 2. The group she worked in only had one of


*Figure 2*. The top image is of an HP-65 calculator. The middle image shows a black card that is partially inserted in the calculator. The card is fully inserted in the bottom image, it appears above the row of keys labeled A-E. This card could store programs and data. HP sold packages of cards for different purposes, including the two statistical packages (e.g., normal distribution, correlation, analysis of covariance). (Images appear courtesy of Nigel Tout, Vintage Calculators Web Museum, www.vintagecalculators.com.)

these statistical calculators. It was able to run regression and other statistical analyses and used magnetic strips, called cards, which held programs or data. This was a big advancement from her days as an undergraduate at American University, which only had a single four-function calculator and a waiting list to use it.

### Calculating With Computers

When analyzing larger datasets, using a calculator was often impractical; therefore, researchers often used mainframe computers. Most often the original data for a study were collected on paper and had to be loaded into the mainframe computer's memory for analysis. In addition, the syntax for running the statistical programs on the mainframe also had to be inputted. It was not possible to directly input the data and syntax into a computer. Instead, punch cards, also known as Hollerith[1] cards, were often the primary medium for inputting data (see Figure 3).[2] These were small—often 7⅜" by 3 ¼"—sheets printed on cardstock that contains 80 columns and 12 rows. Data were saved on the punch cards by punching out small squares in

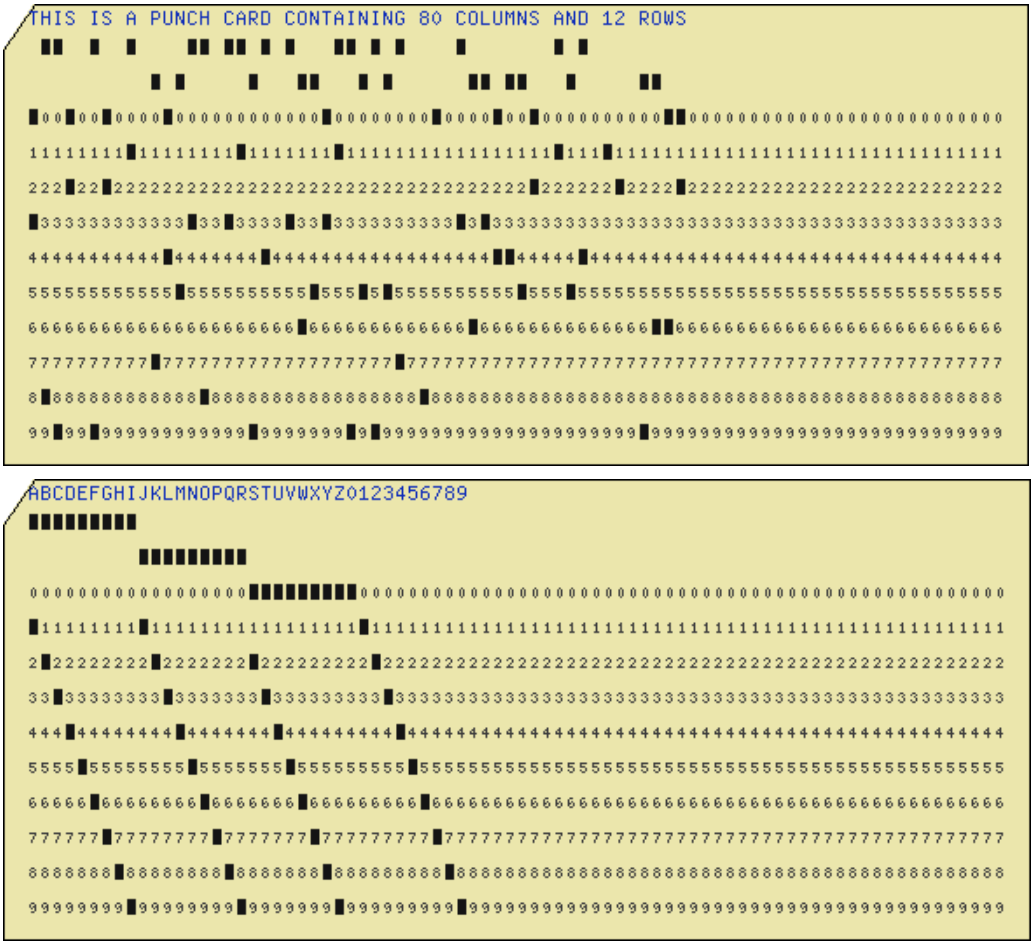


*Figure 3.* This figure contains images of two virtual punch cards created on http://www.kloth.net/services/cardpunch.php. The second image shows the mapping of characters to the holes on the punch card.

each column, much like the infamous Florida voting machines containing the hanging chads in the 2000 presidential election. Thayer remembers hand punching data for his dissertation using a small handheld machine, such as the ones shown in Figure 4. He said it was a good practice to verify one's work by placing the card back in the machine and repunching it. Mistakes could be identified by looking at the card to see if more than one hole was punched in each column (the importance of ensuring the cards were error free is described below).

Over time the, small handheld machines were replaced by larger keypunch machines. These machines were about the size of an upright piano (see Figure 5 for an example) and were run by keypunch operators, which quickly became an occupation. Most universities contained rooms

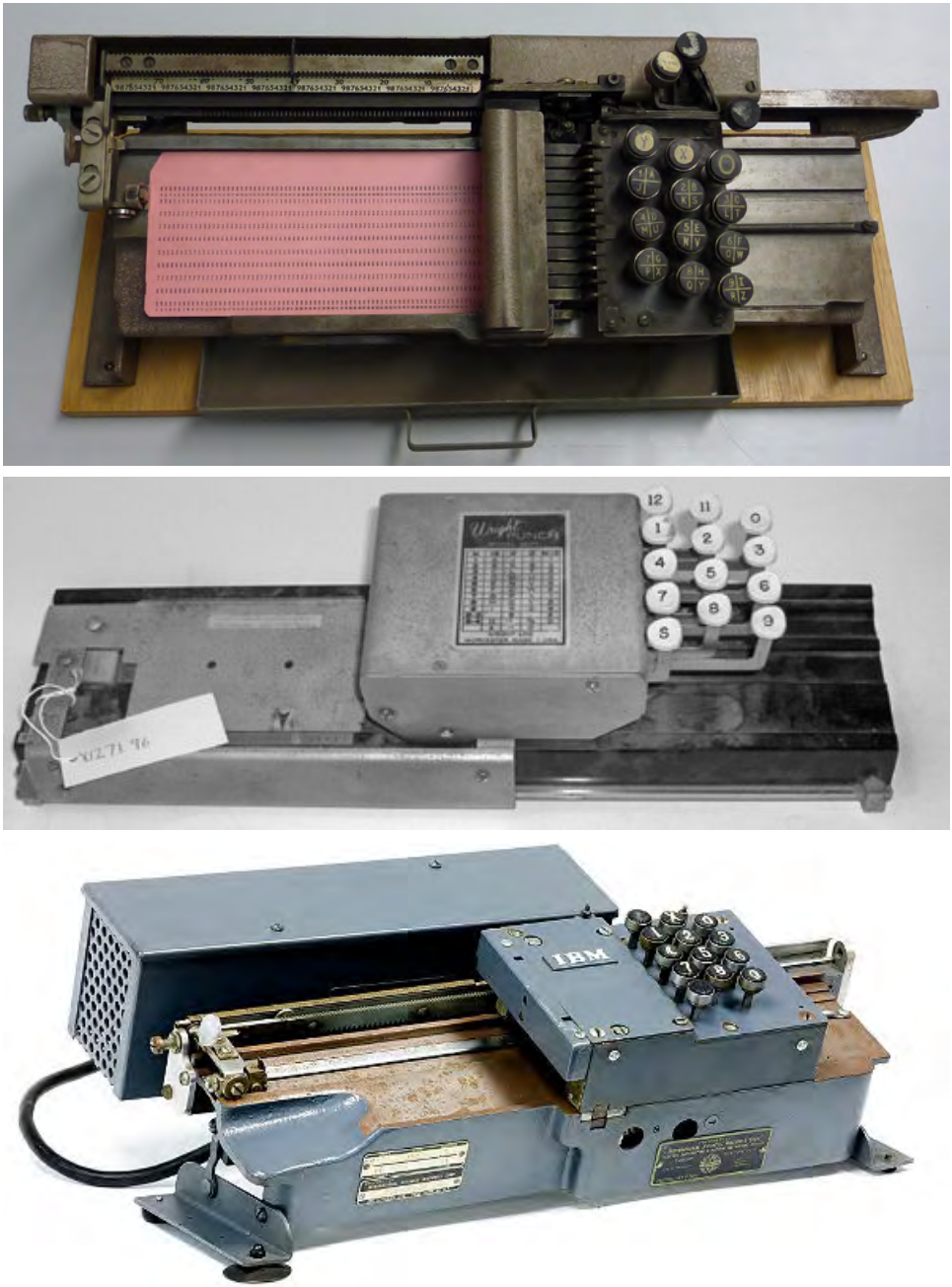


*Figure 4.* This figure contains three images of manual punch card machines. The first bears a strong resemblance to that designed by Hollerith. The second machine is the Wright Line manual card punch and the third is the IBM Type 11 electric keypunch. (The first image is courtesy of Wikimedia commons and the second and third images are courtesy of Computer History Museum.)

*Figure 5.* This is the IBM 129, a later model keypunch machine. (Image courtesy of Wikimedia Commons.)

of keypunch machines that graduate students could use. For those students with grant funding, keypunch operators could be hired to do the actual work. The keypunch machines contained a keyboard, hopper for new cards, and an output stack for punched cards. A keypunch operator would enter the data using the keyboard, much like data entry is conducted today on a computer. However, as the data were typed, holes would be punched on the punch card. After 80 characters were entered, the card moved to the left (where it could be inspected) and another card was fed in from the hopper. After punching the cards, it was often a good idea to make a second copy; this could be done using a duplicating feature on the more advanced keypunch machines. Some historical footage providing more information on keypunching are available on YouTube (see https://www.youtube.com/watch?v=oaVwzYN6BP4 and https://www.youtube.com/watch?v=YXE6HjN8heg).

After the cards were punched, they had to be inputted into the mainframe computer. This is the most time-consuming part of data analysis "back in the day." Most campuses only had one mainframe computer and everyone on campus had to share it, not only researchers but also administrators using it for processing payroll and grades. A researcher would take the cards to the computer center and turn them over to the computer center staff, often by placing the deck of cards in a metal tray. Then the wait began. The cards were put in a long queue of various jobs for the mainframe. After hours—or sometimes days—of waiting, the cards would be fed into the machine and the mainframe would conduct the data analysis. The analysis usually went pretty quickly—it was the backlog of jobs that the single mainframe computer had to process that took time.[3] In addition, each job's cards had to be manually carried to and from the mainframe by a computer operator.[4] The results of the analysis were outputted on paper and both the paper and cards were later collected by the researcher. Sometimes the entire process from dropping off the punch cards to obtaining the printout with the results could take 24 hours (in Gast's experience) or even 2 weeks (in Beehr's experience).

If everything went as planned, the analysis was complete and the researcher could begin interpreting the results. However, things did not always go as planned. If

there was a mistake in the syntax code, then the printed output might reflect this (much like what occurs today using modern statistical software). At other times, the researcher would only receive a printout stating "JCL [job-control language] error." At this point, the researcher would have to determine what the mistake was, repunch a portion of the cards, and then head back to the computer center and wait. As a result, an error could cost the researcher hours or even days. This is the reason researchers would spend much time double-checking their punch cards and thinking carefully about their analyses and syntax. As several interviewees pointed out, you could not simply play around with different analyses like some researchers do today. It simply was too inefficient and time consuming.[5]

Punch cards were problematic for other reasons. If a card was torn or bent it would have to be repunched. In addition, cards sometimes became jammed in the mainframe computer or other card processing machines and had to be replaced. Hanser remembers having to use a card saw (a special thin knife without a handle) to saw through a set of jammed cards in a card sorting machine. Researchers walking across campus were always fearful of their cards being dropped or blown away by the wind. Hakel recalls some of his colleagues numbering punchcards and having to check the order of the cards after they were returned by the computer operator.

Eventually, the process of using punch cards to provide commands to the mainframe was replaced by computer dummy terminals. One such terminal was the DECwriter, a combination keyboard and dot matrix printer (see Figure 6). The dummy terminal was not a computer itself but was instead used to remotely control a mainframe computer (such as the IBM 360 or 370) via an acoustic coupler (an early dial-up modem). The syntax code could then be entered using the dummy terminal, and after the job was completed, the output would be printed on the dummy terminal. The process is akin to a virtual punch card and dummy terminal "Mad

*Figure 6.* The IBM DECwriter, which looks like a cross between a dot matrix printer, keyboard, and typewriter, was used as a dummy terminal to control a mainframe computer. (Image courtesy of Wikimedia commons.)

Men style" GoogleSearch that you can try for yourself online (http://www.masswerk.at/google60/).

Larger datasets could also be stored using magnetic tape (often originally created by reading a stack of punch cards). Thus, a researcher would specify which reel of tape was needed. The tapes were usually not handled by the researcher; instead, they resided in the mainframe computer center's tape library and would be loaded onto the mainframe by a computer operator. Although magnetic tapes were more stable than punch cards, they were not without problems, as is evident by two stories Hanser told us. Once he was running data using magnetic tapes in a trailer at a military post and a wire bouncing against the outside of the trailer caused the data on the tapes to become scrambled. Sometime the tape itself would be physically damaged. In these situations, one of his colleagues, Frances Grafton, painted a compound called "magnaflux" onto the tape to visually reveal where the magnetic bits of data were (which could be seen because the data were not packed very close together on the tape).

Around this time, many large organizations had their own mainframe computers. However, those that did not had to lease time on a mainframe computer. At universities, computer time could be charged to a grant or to the department. I-O psychologists at organizations that leased mainframe access had to worry about the cost of making mistakes with their analyses and the length of time it took to run more intensive analyses and larger datasets, each of which could cost hundreds or thousands of dollars.

*Statistical software*. Psychologists conducting data analysis prior to the advent of point-and-click statistical software (e.g., in the late 1980s to early 1990s) had to be versed in syntax programming for several different software packages. In the early 1950s, a researcher had to review the formulas for a particular analysis and then think about how best to program them into the mainframe. Later, statistical packages such as COBOL (short for COmmon Business Oriented Language) and FORTRAN (short for FORmula TRANslation) became available (in 1959 and 1957, respectively). COBOL was good with processing data (e.g., merging, sorting), whereas FORTRAN was better for statistical analyses and computation. Later, more powerful statistical software was released. Several of the psychologists we spoke with used BMDP (short for Bio-Medical Data Package), which was originally developed for the biomedical field in 1965. Beehr used OSIRIS (short for Organized Sets of Integrated Routines in Statistics; Van Eck, 1980) at the University of Michigan. Another used P-STAT, a program originally developed at Princeton University that earned the distinction of being called the "statistical package that doesn't mess around" in *PC Magazine* (Ramsay, 1989, p. 130). SAS and SPSS became available in 1966 and 1968, respectively, and eventually became the most prevalent statistical packages used by I-O psychologists. Oftentimes, psychologists used whichever

system (e.g., BMDP, SAS, or SPSS) to which their employer or university had access, which meant learning a new statistical package when you changed organizations.

***Writing Reports***

After the data analysis was complete, I-O psychologists often had to write up the results. Today most of us do our writing sitting at a computer; however, "back in the day" desktop computers and laptops with word processors did not yet exist. Just about everyone we spoke with hand-wrote the text of their theses and dissertations. Most then paid a typist to type the text onto paper using a typewriter because most researchers of the time were not skilled in touch-typing. Using a typewriter made it very difficult to revise text. Sometimes the text could be changed with white out or by actually cutting and pasting the paper itself. More substantial changes might require an entire section to be retyped. Most professors were aware of this, as well as the financial state of their students, and often restrained themselves from asking their students to rewrite major portions of their text.

As technology advanced, typewriters were replaced with word processing machines, such as the Lexitrons (see Figure 7) that Reilly used for typing technical reports. Using this machine, it was possible to type, edit, and print a report. The Lexitrons also had a proprietary floppy disk for saving the report. It was also possible to have the text of a report placed onto punch cards and processed on a mainframe (as Gast did for a graduate school paper in 1974). Giddings and Zimmerli (1972) developed a program entitled Thesis 3.5 that some of Hanser's classmates used for their theses and dissertations.

***Advent of Desktop Computers***

Needless to say, the arrival of desktop computers revolutionized data


*Figure 7.* This is a Lexitron word processor, model VT202 (image courtesy of the Computer History Museum).

analysis and report writing. However, when these computers became available in the 1980s, most organizations would have only a few computers per department. In other words, I-O psychologists did not have computers at their desks. Instead, they would have to wait until a shared computer became available. Data at this time could be stored on very large removable disks such as the Bernoulli disk, which contained 10 MB of data in a cartridge about the size of a ½ inch stack of letter sized paper. Smaller files could be stored on floppy disks (the most common sizes were 3½, 5¼, and 8 inches), and some computers used small magnetic strips for holding data. However, analyses on many of the larger datasets continued to be conducted using mainframe computers, especially if the dataset could not be stored on a floppy disk.

Desktop computers assisted greatly with writing reports, theses, and dissertations. As word processing software became available, it was no longer necessary to manually type text using a typewriter or a Lexitron. This made editing typewritten text much easier, as text could be copied and pasted without having to retype entire sections of a paper.

### *Modern Statistical Analysis*

Eventually, desktop computer storage became adequate for storing large datasets and for running programs like SPSS and SAS. This meant that the days of walking across campus to the computer center with a pile of punch cards or using a DECwriter with an acoustic coupler to run a regression were over. Everyone we spoke to said that the reactions of their colleagues were overwhelmingly positive. It made data analysis much more efficient and flexible. In addition, collaboration with I-O psychologists who worked at different institutions became much easier. However, it also became easier for researchers to get by without fully understanding the math behind their statistical analyses or to sit down at a computer and run multiple tests and "fish" for significant results.

### *Slide Rules, Manual Factor Analysis, and Shortcut Statistics*

Finally, we also asked the interviewees about slide rules, conducting factor analyses by hand, and usual shortcut statistics. Few, however, had experience with these. Many had used slide rules but not for their psychology work; slide rules were more common for high school and college courses, especially in trigonometry, chemistry, and engineering. Although most of the interviewees had heard stories of conducting factor analyses and rotations by hand, none of them were directly involved in this work (mainframe computers[1] had made this task obsolete). According to Schmitt, Louis Leon Thurstone spent months doing factor analyses by hand and had papers with the analyses pasted over the entire walls of his office. Although some textbooks make note of obsolete statistical formulas that were used to save time (e.g., KR-21, the use of phi coefficients in lieu of Pearson correlations), the interviewees we spoke to said that by the time they entered the field, use of these statistical shortcuts was no longer necessary.

***Summary***

Technological changes have greatly impacted the way in which I-O researchers collect and analyze their data and write their research reports. By minimizing the "grunt work," these changes have made the research process faster and more efficient. Perhaps a TIP History Corner article published 50 years from now will reflect on the technological limitations faced by researchers in the early 21st century.

## Notes

[1] Herman Hollerith invented an early punch card machine for use in the 1890 U.S. Census; his company was a predecessor of IBM (Aul, 1972).

[2] Another option was to collect the data on optical answer sheets (e.g., scantron or bubble sheets) as was described in the last *TIP* History Corner (Cucina & Bowling, 2016).

[3] This was especially the case during the day. Some of the interviewees told us that they would try to run their analyses during odd hours (e.g., over the weekend or in the middle of the night) as the turnaround time was quicker.

[4] Peterson had experience working as a computer operator at an insurance company. He operated an IBM 1401 that read in punch cards and stored the data onto magnetic tapes. The tapes were then used as input (and output) for an IBM 7070 (discussed in our previous column, Cucina & Bowling, 2016) which was controlled using a teletype console (which often look like a DECwriter) and punch cards. Much of his work involved updating the insurance records on the tapes.

[5] Peterson pointed out that if you had access to a lot of money, much of the "grunt work" could be contracted out. He said that there were students and other "guns for hire" who could keypunch your data, program your analyses, and handle the troubleshooting if you had money. However, most students lacked these funds and even some organizations hiring I-O psychologists balked at doing this.

[6] According to Larry Hanser, Frank Medland of the Army Research Institute had developed a factor analysis program that could be run using a card sorting machine. It usually took all weekend to run the factor analysis.

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FEATURE

# Areas in Need of More Science/Research: Results from the 2015 Practitioner Needs Survey

**Ben Porr**
**Federal Management Partners**

**Ted Axton**
**HR Avatar, Inc.**

**Meredith Ferro**
**PDRI, a CEB Company**

**Soner Dumani**
**American Institutes for Research**

## Introduction

In the July 2015 *TIP*, the SIOP Professional Practice Committee (PPC) presented the first of a series of articles reporting the results of the 2015 Practitioner Needs Survey that the PPC conducted between March and April 2015. The objective of the survey was to gather information about current needs of I-O practitioners to provide insights to SIOP leadership and committees (e.g., PPC, licensure, visibility) about developing future initiatives. In addition, the survey was designed to collect information that could be compared to the results of the 2008 Practitioner Needs Survey in order to examine progress on issues identified in 2008.

This article focuses on a question asked of I-O practitioners in the 2015 survey that requested their perceptions of areas of I-O psychology where additional research may be needed to support effective practice. This question was included in order to help inform both scientists and practitioners about possible priority areas where planning and conducting additional research may be beneficial. It is important to note that the nature of this question for the 2015 survey differed from that asked in the 2008 survey, which focused more broadly on participants' perceptions about gaps between science and practice areas. As such, although comparisons of results between the two surveys will be discussed in this article, the changed nature of the question may impact results of these comparisons.

## Survey Respondents

A total of 469 valid responses were obtained from the 2015 survey, which reflects a response rate of 10% across the SIOP membership (the 2008 survey received 1,005 responses; which was a response rate of 36%). Detailed information on the characteristics of the respondent population is provided in the July 2015 TIP article. In order to compare the 2015 results with the 2008 results, we grouped respondents using the same "practitioner categories" used in analyzing and reporting the 2008 data. Each respondent was grouped into a

practitioner category based on the amount of time the respondent indicated he or she devotes to being an internal or external practitioner (as opposed to an educator, scientist/researcher, or other):

- *Full-time practitioners* devote 70% or more of their time to practice
- *Part-time practitioners* devote 21-69% of their time to practice
- *Occasional practitioners* devote 1-20% of their time to practice
- *Nonpractitioners* do not devote any time (0%) to practice

Similar to 2008, most of the 2015 survey respondents were designated as full-time practitioners (see Table 1).

**Table 1**

***SIOP Practitioner Needs Survey Respondents by Practitioner Category***

| | *N* | Percent of 2015 sample | Percent of 2008 sample |
|---|---|---|---|
| **Full-time practitioner** | 340 | 72% | 61% |
| **Part-time practitioner** | 55 | 12% | 10% |
| **Occasional practitioner** | 35 | 8% | 19% |
| **Nonpractitioner** | 39 | 8% | 10% |
| **Total** | 469 | 100% | 100% |

### Topics for More Science/Research

In 2008, Cober, Silzer, and Erickson reported results when respondents were asked: *In which areas do you find **the biggest gap** between the available science/research on a topic and actual organizational practice in your work?* Respondents evaluated the gap between science and practice in 26 content areas identified during the survey development process to reflect both research and applied interest areas in our field. Respondents were asked to indicate whether they felt that a gap existed in the area by identifying whether (a) practice was ahead of science/research, (b) science was ahead of practice, or (c) little or no gap exists.

Results of the question from 2008 are presented in Table 2. Areas are listed in descending order, from the greatest percent of respondents indicating practice was ahead of science/research to the least. Respondents indicated that practice was ahead of science/research in the vast majority of areas (19 of 26). For the most part, "practice ahead" responses were provided for areas that tended to be:

- Hands on practice areas such as consulting and coaching
- On the organization side of I-O psychology, such as strategic planning and organizational development
- Core areas of human resource practice such as succession/workforce planning, talent management, employment branding, HR technology, labor and employee relations, and employee recruitment

**Table 2**
***Science/Practice Gap***

| Area | Response percent (all respondents, *n* = 1005) | | | |
|---|---|---|---|---|
| | Practice ahead* | Little or no gap* | Science/ research ahead* | Do not know** |
| Consulting and advising | ***80 %*** | 13 % | 6 % | 22 % |
| Employment branding | ***74*** | 17 | 9 | 43 |
| HR technology | ***73*** | 17 | 11 | 30 |
| Executive/management coaching | ***70*** | 18 | 12 | 27 |
| Strategic planning | ***68*** | 17 | 14 | 30 |
| Succession/workforce planning | ***67*** | 16 | 16 | 26 |
| Talent management | ***66*** | 16 | 17 | 27 |
| Labor relations | ***65*** | 24 | 11 | 50 |
| HR general practices | ***64*** | 21 | 14 | 30 |
| Compensation | ***62*** | 25 | 12 | 49 |
| Employee relations | ***59*** | 28 | 12 | 45 |
| Employee recruitment | ***56*** | 28 | 15 | 27 |
| Organizational development | ***55*** | 24 | 21 | 26 |
| Litigation support | ***51*** | 31 | 18 | 46 |
| Leadership and management development | ***49*** | 27 | 23 | 20 |
| Management/executive selection | ***47*** | 24 | 29 | 20 |
| Organizational culture | ***37*** | 27 | 35 | 24 |
| Performance management | ***37*** | 27 | 35 | 20 |
| Competency modeling | ***36*** | 29 | 34 | 21 |
| Training and development | 35 | ***38*** | 27 | 21 |
| Cross cultural issues | 34 | 21 | ***44*** | 36 |
| Employee engagement and attitudes | 30 | ***35*** | 34 | 22 |
| Individual assessment/assessment centers | 29 | 33 | ***37*** | 18 |
| Selection/staffing | 26 | 32 | ***41*** | 15 |
| Job and work analysis | 14 | 34 | ***52*** | 17 |
| Measurement and statistics | 3 | 27 | ***80*** | 12 |

*Response percentages in first three columns are based on the total number of respondents answering one of the first three response choices and do not include the Do Not Know respondents.
***Bold font*** indicates highest percentage for a specific content area.
** Based on total survey respondents
NOTE: This table is a reprint of that published in Practice Perspectives: Science–Practice Gaps in Industrial-Organizational Psychology: Part I: Member Data and Perspectives by Rich Cober, Rob Silzer, Anna Erickson, *The Industrial-Organizational Psychologist, 47*(1), 97-106.

The 2015 survey included a modified version of the question that focused mainly on identifying where practice was ahead of science/research, in order to help provide scientists with potential broad areas of focus for future research. To identify

the topics practitioners felt more research was needed, respondents were asked: *In which topic areas do you find more science/research is needed to support effective organizational practice in your work?* As a follow-up, respondents were also asked to identify their top three choices. Thus, the focus changed from whether practice was ahead of science/research to a more specific question of where the greatest needs were for more science/research. The topic areas to choose from remained the same on both the 2008 and 2015 surveys.

Table 3
***Research/Science Needed to Inform Practice***

| Area | Response percent ($N$ = 429) | |
|---|---|---|
| | Research/science needed | Top three priority |
| Succession/workforce planning | 38.6 | 15.6 |
| Talent management | 34.8 | 14.3 |
| Management/executive selection | 34.5 | 12.8 |
| Performance management | 31.6 | 12.2 |
| Leadership and management development | 31.1 | 14.5 |
| Organizational culture | 29.0 | 9.6 |
| Organizational development | 27.9 | 8.7 |
| Strategic planning | 27.5 | 8.3 |
| Employee engagement, attitudes, and motivation | 27.3 | 10.9 |
| HR technology | 27.1 | 12.2 |
| Executive/management coaching | 26.4 | 10.2 |
| Consulting and advising | 24.7 | 7.9 |
| Measurement and statistics | 23.5 | 9.4 |
| Individual assessment, assessment centers | 23.0 | 7.5 |
| Cross-cultural issues in I-O practice | 22.6 | 8.3 |
| Selection | 22.6 | 11.7 |
| Competency modeling | 20.9 | 5.1 |
| Human resources general practices | 19.6 | 4.7 |
| Employment branding | 19.0 | 3.0 |
| Training and development | 18.6 | 2.3 |
| Recruitment and staffing | 17.9 | 5.1 |
| Compensation | 17.9 | 5.5 |
| Employee recruitment | 17.7 | 3.0 |
| Job and work analysis | 17.5 | 4.5 |
| Litigation support | 17.1 | 4.1 |
| Groups/teams | 17.1 | 4.1 |
| Employee relations | 13.9 | 1.1 |
| Labor relations | 12.6 | 2.3 |

Table 3 presents the percentage of respondents that endorsed the need for more science/research in each area, as well as the top three priorities rated by each respondent. As anticipated, the topics chosen and top three choices were very similar. Succession/workforce planning, talent management, and management/executive selection rose to 1, 2, and 3 from 6, 7, and 16, respectively, whereas consulting and advising, employment branding, and HR technology dropped from 1, 2, and 3 to 12, 19, and 10, respectively. It's interesting to see that 2015's top areas lend themselves to traditional I-O research areas (e.g., assessment, training and development) compared to the top 2008 areas, which are more fringe I-O research areas.

Unfortunately, there is no clear answer to the reasons behind these changes, but we can assume it's partly due to the following reasons: progress in practice/research, sample size, and/or change in question focus. First, practice has advanced in these strategic workforce and leadership areas over the past 7 years, and organizations have seen the value of a systematic approach to these human capital practices. Second, it may be due to the sample,

which is half the size of the last survey. Last, these results could be due to the change in question. In the previous administration, the people were asked to think about how the two relationship between practice and research (e.g., is research ahead of practice or is practice ahead of research), which potentially put people in a different frame of mind than simply asking where more research is needed.

It's also interesting to see the lowest percentage groups are either I-O areas that have an extensive research history (e.g., job and work analysis, groups/teams) or transactional HR processes (e.g., labor/employee relations, compensation, recruitment and staffing).

As shown in Figure 1, which presents the results for the areas identified as needing science/research broken out by practitioner group, there were no differences in the rank ordering of selections. Outside of the top two choices (i.e., succession/workforce planning and talent management), part-time practitioners had a higher percentage of selections from every category. This might be due to the sample size, but as we saw in the last *TIP* article on use of SIOP resources, part-time practitioners tend to read more research than full-time practitioners and therefore might notice the gaps more frequently. There is a noticeable gap between research needs of full/part-time practitioners and occasional and nonpractitioners across all categories.

For Table 4, we continued investigating the differences between our four groups and rank ordered the percentage of people that identified an area (e.g., succession/workforce planning, talent management) as a *top three science/research need*. To conserve space, we only include the top 10 most selected (i.e., highest percentage selected) areas for each group. Succession/workforce planning, talent management, performance management and executive/management coaching were present in all three practitioner categories. Interestingly, litigation support was in the top 10 only for part-time practitioners. Three areas were in the top 10 for only full-time practitioners: leadership and management development; HR technology; and employee engagement, attitudes, and motivation. Finally, organizational development and competency modeling were in the top 10 for everyone except the full-time practitioners.

**Conclusions and Recommendations**

Based on the 2015 survey results related to practitioner development needs, practitioners indicated the key areas they would like to see more research performed in order to support effective practice. The results suggest a strong interest in more science/research in the following areas:

- Succession/workforce planning
- Talent management
- Management/executive selection
- Performance management
- Leadership and management development

There are many possible reasons that practice is ahead of research in these areas. First, most of these top priorities involve the convergence of multiple re-

| | 0% practice | 1-20% practice | 21-69% practice | 70% and above practice |
|---|---|---|---|---|
| **Labor relations** | 5.1 | 8.6 | 12.7 | 12.1 |
| **Employee relations** | 5.1 | 8.6 | 14.5 | 15.0 |
| **Job and work analysis** | 7.7 | 11.4 | 20.0 | 15.6 |
| **Groups/teams** | 5.1 | 8.6 | 20.0 | 15.6 |
| **Training and development** | 7.7 | 11.4 | 20.0 | 17.1 |
| **Litigation support** | 10.3 | 11.4 | 20.0 | 17.4 |
| **Compensation** | 12.8 | 11.4 | 21.8 | 18.2 |
| **Recruitment and staffing** | 10.3 | 11.4 | 20.0 | 18.2 |
| **Employee recruitment** | 12.8 | 14.3 | 21.8 | 18.5 |
| **Employment branding** | 12.8 | 14.3 | 23.6 | 20.0 |
| **Measurement and statistics** | 12.8 | 14.3 | 23.6 | 20.3 |
| **Competency modeling** | 15.4 | 17.1 | 27.3 | 21.2 |
| **Cross-cultural issues in I-O practice** | 15.4 | 14.3 | 25.5 | 21.2 |
| **Human resources general practices** | 17.9 | 17.1 | 30.9 | 22.1 |
| **Selection** | 17.9 | 17.1 | 30.9 | 23.5 |
| **Consulting and advising** | 17.9 | 17.1 | 32.7 | 23.8 |
| **Individual assessment, assessment centers** | 17.9 | 17.1 | 32.7 | 24.7 |
| **Executive/management coaching** | 17.9 | 20.0 | 32.7 | 26.2 |
| **HR technology** | 20.5 | 20.0 | 32.7 | 28.2 |
| **Employee engagement, attitudes, and motivation** | 20.5 | 20.0 | 32.7 | 28.5 |
| **Strategic planning** | 20.5 | 22.9 | 34.5 | 29.7 |
| **Organizational development** | 20.5 | 22.9 | 36.4 | 30.0 |
| **Organizational culture** | 23.1 | 25.7 | 36.4 | 30.6 |
| **Performance management** | 25.6 | 25.7 | 36.4 | 32.4 |
| **Leadership and management development** | 25.6 | 25.7 | 36.4 | 32.6 |
| **Management/executive selection** | 28.2 | 25.7 | 38.2 | 35.9 |
| **Talent management** | 28.2 | 28.6 | 38.2 | 38.5 |
| **Succession/workforce planning** | 33.3 | 31.4 | 41.8 | 42.6 |

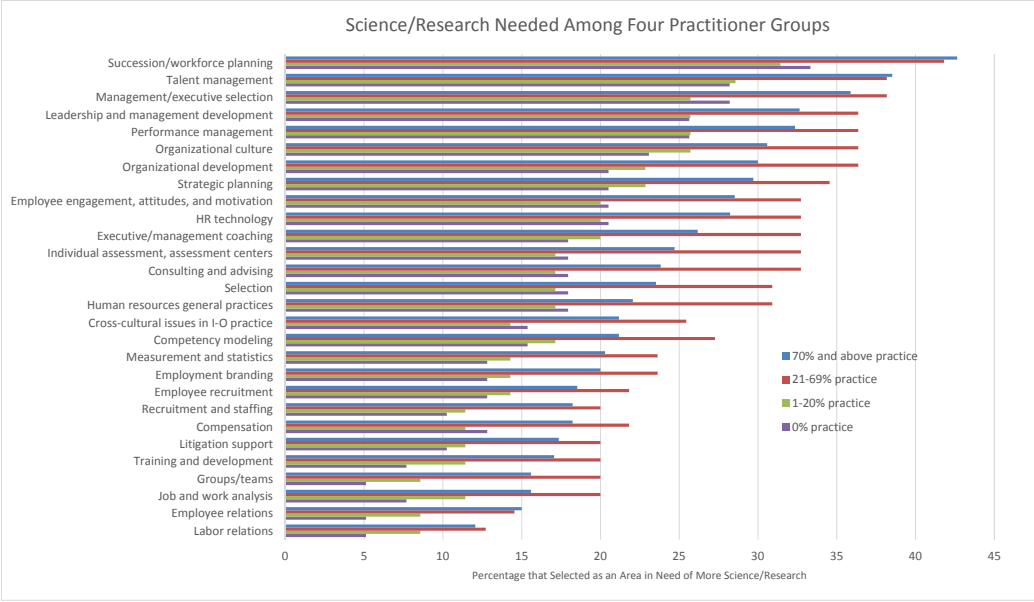


***Figure 1.*** **Percentage of Respondents that Selected the Area as in Need of Science/Research**

Table 4

***The Areas Selected as Top Three by Practitioner Category***

| Rank | Full-time practitioner (70% and above) | Part-time practitioner (21-69%) | Occasional practitioner (1-20%) | Nonpractitioner (0%) |
|---|---|---|---|---|
| 1 | Succession/workforce planning | Performance management | Succession/workforce planning | Succession/workforce planning |
| 2 | Talent management | Litigation support | Competency modeling | Management/executive selection |
| 3 | Leadership and management development | Talent management | Organizational development | Organizational development |
| 4 | Management/executive selection | Strategic planning | Selection | Talent management |
| 5 | HR technology | Succession/workforce planning | Performance management | Organizational culture |
| 6 | Performance management | Management/executive selection | Talent management | Individual assessment, assessment centers |
| 7 | Employee engagement, attitudes, and motivation | Executive/management coaching | Strategic planning | Competency modeling |
| 8 | Executive/management coaching | Organizational development | Executive/management coaching | Consulting and advising |
| 9 | Selection | Individual assessment, assessment centers | Consulting and advising | Measurement and statistics |
| 10 | Organizational culture | Competency modeling | Employee recruitment | Cross-cultural issues in I-O practice |

search areas (e.g., succession/workforce planning is a combination of employee development, future state assessment, competency gap analysis, and strategic planning). As we see in the data, each one of these areas needs additional research (e.g., training and development, competency modeling, strategic planning), so developing research that integrates these areas to inform their interaction multiplies the difficulty of advancing the field. The SIOP webinar on succession planning may offer some insights http://www.siop.org/webinar.aspx. It includes areas of research that has informed succession planning. Secondly, these topic areas often can't be controlled in real-world settings, so it makes it difficult to test various approaches with the same sample. Some obstacles to measuring this would be criteria for making a successful transition, timeframe for how long it takes to determine success, environmental factors that could impact the transition, and so on. Most of the research that is done is post hoc, but future research should be done longitudinally to identify the drivers that lead to a successful transition.

Last, as is always the case, researchers cannot investigate these areas without partnerships with applied practitioners who have access to the data. Unfortunately, advancing the field is secondary to delivering client results. Most of the time, practitioners cannot even get access to the data. This is exacerbated when dealing with more sensitive data (e.g., effectiveness of leaders that drive the organization), which as we see are most of the top research needs (e.g., succession planning, manager/executive selection, leadership development).

## Next Steps

Moving forward, we have multiple next steps. Immediately in response to this article, practitioners have told us the areas where we can provide additional research. This can be accomplished through basic research or simply compiling research that has already been done on the topic. For

example, SIOP's white paper series, which includes practical articles on research areas, could be a great place to start. As we showed in the last article, sometime practitioners do not even realize the resources that are available to them, so it is also important to communicate these resources (e.g., webinars, white papers) through multiple channels.

For the overall project, our next steps include finalizing the technical report on the 2015 survey results for the SIOP Executive Committee and writing one more *TIP* article to share summaries of the results more broadly with the SIOP membership.

Our next and final article will provide survey results related to licensing issues. We welcome any feedback or questions you may have about the survey results, and we look forward to working with SIOP members and leaders as the PPC shapes its future agenda.

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FEATURE

# Mindfulness-Based Interventions: A Brief Review of Their Application to Graduate Student Strain

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Graduate school is often a stressful period for budding industrial-organizational psychologists. One strategy for managing stress, both in graduate school and beyond, is the mindfulness-based intervention (MBI). This article examines the potential efficacy of MBIs for the graduate student population within a stressor-strain framework. First, we detail common graduate student stressors, then we define mindfulness and provide examples of mindfulness exercises. Next, we review meta-analytic evidence for the effectiveness of MBIs in reducing strain in broader populations. Last, we provide resources for beginning a mindfulness practice. Although this article focuses primarily on the graduate student population, the lessons learned from MBI research apply to most professional populations as well.

## Graduate Student Stressors

Stressors are external stimuli that elicit a response in an individual, whereas strains are the physical or emotional responses to stressors (Jex, Beehr, & Roberts, 1992). We reviewed five recent studies that collectively sampled 4,148 graduate students in order to determine the stressors and strains most commonly experienced by graduate students (El-Ghoroury, Galper, Sawaqdeh, & Bufka 2012; Hyun, Quinn, Madon, & Lustig, 2006; Myers et al., 2012; Offstein, Larson, McNeill, & Mwale, 2004; Oswalt & Riddock, 2007). These common stressors include academic workload, competing demands, conflict between research interests and unrelated academic requirements, finances, holding a job, career planning, loneliness, adjusting to new environments, time management, and poor school/work–life balance.

These stressors may result in strains, as observed by Oswalt and Riddock (2007), who found that 74.8% of the 219 graduate students sampled reported being "stressed" or "very stressed." Further, students may experience other negative outcomes, including interference with optimal functioning, burnout (El-Ghoroury et al., 2012), feeling overwhelmed or exhausted (Hyun et al., 2006), and decreased academic performance (Kernan, Bogart, & Wheat, 2011). In summation, the literature overwhelmingly demonstrates that graduate students are faced with a multitude of stressors that put them at risk for strains, which in turn may impact optimal functioning in both personal and professional domains.

Graduate students typically cope with stressors in a number of ways. The most prevalent coping strategies are talking with friends, classmates, or family; eating

comfort foods; watching T.V.; "vegging out;" exercising; and sleeping (El-Ghoroury et al., 2012; Oswalt & Riddock, 2007). Meditation did not emerge as a prevalent stress management technique, as it was only utilized by 12.8% of the 219 graduate students sampled by Oswalt and Riddock (2007). Thus, the purpose of this article is to provide an introduction to mindfulness meditation and demonstrate its utility to the graduate student population.

### *Definition of Mindfulness*

The concept of mindfulness stems from the Buddhist tradition and has existed for 2,500 years as a way of fostering peace and spiritual awakening (Van Gordon, Shonin, Griffiths, & Singh, 2015). In modern spiritual terms, one may understand mindfulness as a form of meditation that utilizes present-moment awareness to reach a state of focus and tranquility. Mindfulness has been characterized by researchers as a combination of attention regulation, present-moment orientation, awareness of experience, and an attitude of acceptance and non-judgment toward one's experience (Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007). Given the abundance of definitions in the literature, Bishop and colleagues (2004) offered a two-component operational definition for mindfulness:

> The first component involves the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment. The second component involves adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance. (p. 232)

Mindfulness may function as either a state of consciousness or a trait that can vary in magnitude between individuals (Brown & Ryan, 2003). State mindfulness is the non-judgmental observation of various aspects of consciousness including sensations, thoughts, and emotions that arise from moment to moment (Bishop et al., 2004). Whereas state mindfulness is a temporary and changeable state of consciousness, trait mindfulness is an attribute that every individual inherently possesses to some degree that can be increased via mindfulness meditation practice (Bodner & Langer, 2001), and is independent of state mindfulness (Brown & Ryan, 2003). All individuals are capable of attaining a mindful state (Kabat-Zinn, 2005), but trait mindfulness varies between individuals such that some possess more mindful dispositions and can maintain a mindful state of consciousness more frequently and with less effort than others (Baer, Smith, & Allen, 2004).

To that end, mindfulness meditation improves well-being by facilitating emotional regulation as well as reducing aversion and attachment to internal and external phenomena (Kumar, 2002). Hölzel et al. (2011) suggest that the benefits of mindfulness meditation arise through attention regulation, increased levels of body awareness, emotion regulation, and change in self-perspective. Put simply, mindfulness

meditation gives individuals the mental tools to gain perspective on their patterns of thought and emotions. By understanding experiences in a non-judgmental and accepting manner, mindful individuals are able to maintain focus on the present moment rather than ruminating on the past or worrying about the future.

### *Practicing Mindfulness Meditation*

Mindfulness meditation may lead to a number of positive outcomes, but learning the technique requires practice. In this section, we first describe the different behaviors and attitudes that serve as the foundation of MBIs. A description of the most popular intervention, Kabat-Zinn's (1990) mindfulness based stress reduction (MBSR) program and the underlying psychological mechanisms that explain its effectiveness follows. Finally, we include exercises that can be easily integrated into daily activities.

In any basic mindfulness intervention there are three types of behaviors that help participants adjust their relationships with inner thoughts and feelings through increases in awareness (Shapiro, Brown, & Biegel, 2007; Young, 2011). These include (a) *noting*, a rhythmic sequence that entails acknowledging and focusing intently on a sensation; (b) *doing nothing*, where the intention to control thoughts and direct attention is dropped; and (c) *nurturing positive thoughts*, or creating and concentrating on positive images and concepts (Young, 2011). These components are related to attitudes that form the foundation for mindfulness meditation techniques, including nonjudgment of inner thoughts, nonstriving, patience, "beginner's mind" (i.e., a willingness to see everything as if for the first time), trust, acceptance, and a willingness to "let go" of thoughts (Hölzel et al., 2011; Kabat-Zinn, 1990). Over time, these techniques allow individuals to observe their thoughts from a distance (Keng, Smoski, & Robins, 2011). With repeated mindfulness practice, individuals develop a greater awareness of their beliefs and motivations, which eventually allows them to cope with stressors more effectively (Chiesa & Serretti, 2009).

One of the most popular and widely researched interventions is Kabat-Zinn's (1990) MBSR. As summarized by Chiesa and Serretti (2009), this structured group program integrates Buddhist philosophy with modern clinical and psychological practices. The intent of MBSR is to facilitate well-being by teaching individuals to maintain attention on thoughts and feelings without reacting impulsively. More specifically, trained instructors encourage participants to reflect on their internal state as well as the external environment with openness, curiosity, awareness, and nonjudgmental acceptance. Participants engage in (a) *body scanning*, which involves nonjudgmental awareness of physical sensations in different parts of the body; (b) *sitting meditation*, where participants focus on breathing while maintaining a nonjudgmental awareness of any cognitions that occur; and (c) *Hatha yoga*, or stretches for the purpose of strengthening and relaxing the musculoskeletal system. MBSR interventions are typically 8 weeks long and combine in-class instruc-

tion on formal and informal mindfulness practices with group sessions on topics more indirectly related to mindfulness such as interpersonal communication and stress physiology (Kabat-Zinn, 1990).

Though this may seem like a lot of information for MBI participants to process, MBSR can be understood through the four mechanisms proposed by Hölzel and colleagues (2011): (a) attention regulation, (b) body awareness, (c) emotion regulation, and (d) change in self-perspective. Typically, participants first learn *attention regulation* through focused meditation, where individuals notice and pay attention to a single thought, feeling, or object. With practice, such regulation enables focused attention for longer periods and an increased ability to filter out distractions. Another technique, *body awareness*, focuses attention on physical sensations (e.g., breathing and sensory experiences) in order to assist individuals in calibrating their internal thoughts and feelings with the external world. This should lead to greater clarity (Marianetti & Passmore, 2009) and emotional intelligence (Keng et al., 2011). The third mechanism, *emotion regulation*, refers to the adaptation of emotional responses from impulsivity to reflection and aids in observing experiences in a nonjudgmental manner. Finally, *change in perception of the self* refers to a shift from a feeling of stasis toward a more dynamic self-image. When people feel less static they become more liberated and experience a more positive sense of self (Flaxman & Bond, 2010). The most successful interventions (e.g., MBSR) utilize all four of these mechanisms at different points to effectively increase mindfulness in participants (Hölzel et al., 2011).

The MBSR is one of the most popular MBIs because it is nonreligious, cross-culturally applicable, and grounded in scientific theory (Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013). However, the time commitment and group-based structure may dissuade some individuals from practicing mindfulness, including overloaded graduate students with little time to spare. Previous research has discovered that intervention length does not correlate with effectiveness in reducing psychological distress, suggesting that shorter interventions are equally as effective as the full 26-hour MBSR intervention (Carmody & Baer, 2009; Virgili, 2015). To that end, Table 1 delineates mindfulness techniques that easily fit into daily routines and allow graduate students to practice mindfulness.

### *Effectiveness of MBIs*

The relationship between MBIs and strain reduction has been examined in a number of meta-analyses (Carmody & Baer, 2009; Eberth & Sedlmeier, 2012; Khoury, Sharma, Rush, & Fournier, 2015; Virgili, 2015). Across these studies, the effect of MBIs consistently ranges from 0.26 to 0.83 standard deviations for the various outcomes assessed. Carmody and Baer (2009) found that MBSR programs were associated with reductions in anxiety, depression, negative affect, and perceived stress. Similarly, Khoury et al. (2015) found that MBIs were related to reductions in anxiety, depression, stress, distress, burnout, and improvements in quality of life,

Table 1

*Mindfulness Techniques, Mechanisms of Action, and Instructions*

| Exercise | Mechanism | Instructions |
|---|---|---|
| Body scan | Attention regulation | Focus attention on your feet and slowly shift attention up to the top of your head, concentrating on one body part at a time. |
| Counting method | Attention regulation | Repetitively count your breaths from 'one' to 'ten' and back to 'one'. If you lose count, return to 'one' and begin again. |
| Loving kindness sessions/Metta | Emotion regulation<br>Change in self-perspective | Visualize the target of your feelings, recognize his or her positive qualities and repeat an internalized mantra that can be used to trigger future similar reflections. |
| Mindful eating | Change in self-perspective<br>Attention regulation | Begin eating slowly. Experience the flavors on each area of the tongue, noticing its pattern and consistency. Swallow and follow its path to the stomach. |
| Walking meditation | Attention regulation | Focus on the sensations of your feet leaving and touching the ground, the movement of your arms and other parts of the body. Pick a short area to walk back and forth so as not to be distracted by the setting. |
| Focused breathing | Attention regulation<br>Emotion regulation | Direct full attention to your breath for ~20 breaths, noticing the end point of each in-breath and out-breath. |

*Note*. Exercises drawn from Cohen-Katz et al., 2005; Gregoire and Lachance, 2015; Marianetti and Passanore, 2009; Ramsburg and Youmans, 2014; Sears and Kraus, 2009.

state mindfulness, compassion, spirituality, and empathy. Eberth and Sedlmeier (2012) found that MBIs were associated with reductions in the effects of negative personality traits, stress, and neuroticism while improving well-being and attention. Virgili (2015) found that MBIs were associated with decreases in perceived stress, negative affect, depression, anxiety, job stress, state anxiety, and trait anxiety. These effects were maintained at an average follow-up of 5 weeks post intervention (Virgili, 2015). In addition, these effects hold even in samples of healthy individuals (Khoury et al., 2015), and no differences have been observed when comparing clinical versus nonclinical populations (Carmody & Baer, 2009).

Although these findings are encouraging, we echo Virgili's (2015) cautions that research in this area remains preliminary as researchers examine the effectiveness of MBIs in different populations and compare them to other stress reduction techniques. Specifically, there is little evidence for the incremental validity of MBIs compared to other stress reduction techniques due, in part, to the relatively small number of studies that include alternative relaxation techniques for comparison purposes. Eberth and Sedlmeier (2012), however, found that MBSR interventions had a slightly higher validity ($r$ = .31) than studies utilizing other meditation techniques ($r$ = .25).

Only a few studies have examined the effectiveness of mindfulness practices in reducing stress in the graduate student population. Myers et al. (2012) found that mindful acceptance of experiences was negatively related to perceived stress, and Offstein et al. (2004) reported that self-awareness is commonly utilized as a strategy for reducing internal conflict. Shapiro et al. (2007) conducted an MBSR intervention with 54 graduate students and observed decreases in rumination ($\beta$ = -0.57), anxiety ($\beta$ = -0.52), and perceived stress ($\beta$ = -0.65), and an increase in self-compassion ($\beta$ = 0.58) as compared to a control group. The results of these stud-

Table 2

*Resources for Beginning Mindfulness Meditation*

| Resource | Link |
|---|---|
| Mindfulness Based Stress Reduction | http://www.umassmed.edu/cfm/stress-reduction |
| Headspace | http://www.headspace.com |
| The Mindfulness Training App | Available on the iPhone/Android App Stores |
| Calm | Available on the iPhone/Android App Stores |

ies suggest that the observed meta-analytic effects generalize to the graduate student population, however more research is needed to confirm this hypothesis.

### *Resources for Practicing Mindfulness Meditation*

In Oswalt and Riddock's 2007 study, 41.8% of students stated they were interested in learning about meditation, and 44.1% said they would use it if offered by the university. Luckily with the advent of technology, a governing institution need not formally offer meditation programs. In Table 2 we provide four resources for beginning a mindfulness meditation practice.

The first link presented is for Dr. Kabat-Zinn's MBSR program. As the one of the foremost experts of mindfulness practice, his program is the starting point for many other interventions. Second is Headspace, which is good for beginners looking to ease into a mindfulness practice. During the free introductory 10-day period, animations illustrate and define mindful awareness. Users can select whether each session is 10, 15, or 20 minutes long and after the 10-day introductory period, users can choose themed packs tailored to their goals (e.g., reducing stress, improving self-esteem, improving relationships). Third is the Mindfulness Training app, which offers a store containing guided meditations by Dr. Kabat-Zinn, Thich Nhat Hanh, and other spiritual teachers. Finally, Calm is an app that offers a free 7-day introductory program that provides relaxation and meditation techniques. A subscription allows users to access a variety of goal-focused programs, including improving sleep, self-esteem, and concentration. Self-guided sessions and the ability to track the length and frequency of your daily meditation sessions are available without a subscription.

The effectiveness of mindfulness meditation cannot be understated. It can be a powerful resource for coping with stressors and improving quality of life. Graduate school is a difficult experience for many and the stressors involved may persist upon entering the workforce. We hope that the brief review provided here induces this population to consider mindfulness meditation a useful tool for coping with strain.

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# Health, Safety, and Well-Being

***SIOP is working to create a network of industrial-organizational psychologists who wish to be part of interdisciplinary teams working on improving employee health, safety, and well-being in organizations, and the registry is a centralized source for contacts and referrals. If you practice or conduct research in the areas of health, safety, and well-being, you are invited to join this SIOP Registry today.***

***Log in to your SIOP profile, click "Manage Privacy and Opt In/Out" under the "Account Actions" menu on the right side of the page. Scroll down to find the options relating to the registry and, after making your selections, click "Save."***

FEATURE

# A Look in the Mirror: The Mastery-Oriented I-O Psychologist

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*NOTE:* Prior to being submitted for consideration in *TIP*, this paper was accepted for presentation at the 2016 Annual Conference of the Society for Industrial and Organizational Psychology

Research on personality, especially using the five-factor model (FFM; McCrae & Costa, 1987), has contributed greatly to industrial-organizational (I-O) psychology. In particular, this is because personality traits, especially Conscientiousness, are found to be valid predictors of job performance (Barrick & Mount, 1991; Hurtz & Donovan, 2000) while having relatively less adverse impact than other selection tools, such as cognitive ability tests (Ployhart & Holtz, 2008). Although the FFM is the most widely used personality model, other traits have been studied in the context of work and have been found to correlate with key variables such as job performance and job satisfaction. Such variables include need for achievement (McClelland, Atkinson, Clark, & Lowell, 1976), core self-evaluations (Judge & Bono, 2001), and goal orientation (Phillips & Gully, 1997). As a result, it is of great interest to organizations to be able to understand the personality of its applicants and its incumbents, and often such an examination of traits goes beyond the FFM.

Despite the success of using personality tests to predict job-related outcomes across a variety of occupations, I-O psychologists themselves, including members of the Society for Industrial and Organizational Psychology (SIOP), have historically not been the subjects of these studies. In fact, very limited research exists examining any individual differences between I-O psychologists and other professions. "I-O psychologist" has been rated as the fastest growing job in the United States (United States Bureau of Labor Statistics, 2014). As a result, it will become increasingly necessary to understand ways in which the I-O personality is distinct from (or similar to) other professions, which can have implications for realistic career previews for prospective I-O psychologists. Thus, the purpose of this paper is a preliminary investigation to compare the personalities of I-O psychologists to a baseline working population, as well as to professionals and nonprofessionals in other occupations across two studies. We hope that this will be the first of many studies that look to understand the I-O personality and that this will spark further research in the area.

## Aon-Hewitt's Model of Personality

Aon-Hewitt's personality model is largely based on the FFM and is derived from

nearly 500 adjectives and descriptive states used by previous measures of personality and other traits. This model is based on previous personality models (e.g., FFM; McCrae & Costa, 1987) and is intended to be a comprehensive measure of both the FFM and broader traits not necessarily well-captured by the FFM (e.g., mastery, humility). This model captures lower-order aspects of the FFM, as recommended by recent research (e.g., DeYoung, Quilty, & Peterson, 2007). In addition, some personality aspects were included that were not captured by DeYoung et al.'s model based on their importance for understanding employee personality. This model is particularly relevant for selection across all jobs, as well as leadership and high-potential assessment. Aon-Hewitt's model is operationalized through the development of the Adaptive Employee Personality Test (ADEPT-15®). ADEPT-15 is a multidimensional pairwise preference computer adaptive assessment that mitigates faking and substantially reduces testing time. This, in conjunction with a large item pool, results in lower statement exposure, faster testing, and potentially higher criterion-related validity (Salgado & Táuriz, 2014)

The final model contains six styles and 15 aspects. The adaptation style contains the aspects of conceptual (intellectual curiosity), flexibility (adaptability and open mindedness), and mastery (learning oriented and improvement focused). Task style contains the aspects of drive (proactivity and persistence) and structure (planful and detail oriented). Interaction style contains the aspects of assertiveness (decisive, bold), and liveliness (outgoing, energetic). Emotional style contains the aspects of Composure (calm, relaxed), Positivity (optimistic, resilient), and Awareness (reflective, self-aware). Teamwork style contains the aspects of Cooperation (trusting, helping others), Sensitivity (caring, understanding), and Humility (modest, genuine). Finally, Achievement style contains the aspects of Ambition (goal directed) and Power (motivation to lead, controlling). Altogether, these make up the styles and aspects underlying the ADEPT-15 (for a more detailed description of each of the 15 aspects and how this model maps to the FFM, see Table 1; Boyce, Conway, & Caputo, 2014).

Table 1
*Theoretical Alignment of Aon Hewitt's Personality Model With the FFM*

| Five-factor model (FFM) | Aon Hewitt style | Aon Hewitt aspect |
|---|---|---|
| Openness to Experience | Adaptation style | · Conceptual<br>· Flexibility<br>· Mastery |
| Conscientiousness | Task style | · Structure<br>· Drive |
| Extraversion | Interaction style | · Assertiveness<br>· Liveliness |
| Agreeableness | Teamwork style | · Sensitivity<br>· Cooperation<br>· Humility |
| Neuroticism | Emotional style | · Composure<br>· Positivity<br>· Awareness |
| Unmapped to FFM | Achievement style | · Ambition<br>· Power |

***SIOP Member Personality***

Information on the personality of I-O psychologists may help inform approaches to training and selection. For example, it could allow firms and schools to use such information to make more informed selection decisions for I-O psychology positions in both academia and practice. As mentioned earlier, however, there is very little research that uses I-O psychologists as subjects. One such study found that SIOP academics and practitioners differ in certain workplace characteristics and values. Specifically, this study showed that practitioners valued affiliation, structure, and financial compensation more than their academic counterparts. Academics, on the other hand, valued autonomy and science (e.g., endorsed the item, "It is important for organizations that scientists continue engaging in basic psychological research") more than their practitioner counterparts (Brooks, Grauer, Thornbury, & Highhouse, 2003). Although this allows for an understanding of some of the differences between academics and practitioners, it does not give much information about how I-O psychologists differ from other occupations.

There have been previous attempts to interview I-O consultants and understand what they believe are the personal characteristics that best describe a successful I-O consultant. For example, Zelin et al. (2015), as part of the SIOP Careers study, examined competencies required for success at various consulting levels. Examples of such competencies include integrity, trustworthiness, interpersonal skills, initiative, attention to detail, conscientiousness, and adaptability. Adaptability was rated as particularly important among management and executive positions.

In addition, Vandaveer (2008) interviewed six highly accomplished I-O consultants in different settings and positions (e.g., CEO, partner, senior vice-president, etc.) in an attempt to answer this question. Characteristics named by the consultants included commitment, thirst for learning and growing, open mindedness, mental sharpness, need for achievement, as well as being interested in your work. They also suggest, like Zelin et al. (2015), that successful practitioners need competence in different levels of the organization, including the individual level (e.g., executive consulting), the group level (e.g., assessment and development of teams), as well as the organizational level, such as change management. Altogether, this suggests that I-O consultants require a wide array of knowledge, skills, and high trait levels of personality characteristics. However, this is limited to practitioners and did not ask about the many SIOP members who are in academia (around 40%; SIOP, 2011). As suggested by previous research (Brooks et al., 2003), one cannot infer the personality of academics from that of practitioners.

In an effort to understand personality (as well as other) characteristics that I-O psychologists require to succeed at their jobs, the Occupational Information Network (O*NET) can be a useful tool. This interactive database allows anyone to research the characteristics of thousands of jobs, such as an I-O psychologist. This provides a wide range of information on the types of knowledge, skills, abilities, and other char-

acteristics required to succeed at a given job. Although not providing explicit personality information, O*NET does suggest certain "work styles" that an I-O psychologist should have. Several of these appear to map onto all of the FFM traits: Openness to Experience (adaptability, innovation), Conscientiousness (dependability, achievement, persistence, attention to detail), Extraversion (social orientation, leadership), agreeableness (cooperation, concern for others), and neuroticism (self-control, stress Tolerance). This suggests that I-O psychologists need high levels of a variety of personality traits in order to succeed at their job. However, these ratings are based on ratings provided by job incumbents' perceptions of work styles needed to succeed at the job and are thus not actual personality trait ratings. Because of the dearth of research in this area, we have no specific expectations about which traits would be higher for I-O psychologists. The following studies attempt to answer this question.

## Study 1

### *Method*

Data from 350 professionals from a variety of organizations were collected. Two hundred and fifty (71%) provided usable personality data for the purposes of this study. Out of the 250 participants, 92 (37%) were SIOP members and 158 (63%) were professionals from other fields (from here on referred to as the "baseline sample") used as a comparison. The baseline sample contained data from individuals who expressed interest in learning more about ADEPT-15 over the past year. These individuals represented a wide variety of domains and industries but were not I-O professionals. Some industries included were manufacturing, hospitality, financial services, healthcare, retail, and telecommunication. Participants completed ADEPT-15 through Aon-Hewitt's Global Assessment and Talent Engine (G.A.T.E.®) system and agreed to allow this data to be used in aggregate.

Five personality traits from ADEPT-15 were used in this study: cooperativeness, liveliness, mastery, positivity, and structure (see Boyce, Conway, & Caputo, 2014, for details on the psychometric properties of the assessment). This subset of traits was chosen based on two factors. First, these were thought to be of the most interest to, and could provide the most information about, I-O psychologists. Second, we needed a short survey that could easily be completed between SIOP conference sessions (in order to maximize the potential SIOP member sample size). SIOP participants completed 30 questions in approximately 10 minutes. Baseline participants answered 100 questions, which were completed in around 25 minutes. To examine differences in personality by occupation, we used two-sample *t*-tests and compared the SIOP sample to the baseline sample.

### *Results*

Table 2 shows the results of this analysis. Members of the SIOP sample tended to have higher mastery levels on average (M = 6.82) than the baseline sample (M = 5.91; $t = 3.68$, $p < .05$). The two samples did not differ significantly in mean levels of cooperativeness, liveliness, positivity, and structure.

Table 2

*Personality Differences of SIOP Members Versus the Baseline Sample*

| Trait | SIOP mean | SIOP *SD* | Baseline mean | Baseline *SD* | *t*- statistic |
|---|---|---|---|---|---|
| **Cooperativeness** | 6.63 | 1.91 | 6.64 | 1.84 | -0.03 |
| **Liveliness** | 6.12 | 1.85 | 6.2 | 1.77 | -0.36 |
| **Mastery** | 6.82 | 1.98 | 5.9 | 1.73 | 3.70* |
| **Positivity** | 5.92 | 1.77 | 5.85 | 1.55 | 0.32 |
| **Structure** | 4.78 | 2.15 | 4.53 | 1.9 | 0.97 |

*Note.* * $p < .05$

### *Study 1 Discussion*

The results of Study 1, a preliminary investigation based on available data, point to mastery as an area that differentiates SIOP members from other professionals. Previous studies have examined mastery as a predictor of job performance. Specifically, Janssen and Van Yperen (2004) found that leader-member exchange (LMX) mediated the positive relationship between mastery orientation and in-role job performance, innovative job performance, and job satisfaction. This suggests that mastery-oriented employees, who often are highly motivated to work hard and develop their skills and knowledge, tend to have more positive relationships with their supervisors (e.g., receiving more support and freedom to initiate and carry out tasks), leading to greater job performance. Mastery-oriented individuals tend to have higher self-efficacy and greater metacognition, or knowledge of and control over one's own cognitions (Ford, Smith, Weissbein, Gully, & Salas, 1998). In addition, as mentioned earlier, continual growth and learning was stated by I-O consultants as a major driver of consultant performance (Vandaveer, 2008).

Because this is the first study to examine the distinctiveness of the I-O personality, we wanted to examine further differences among other professional and nonprofessional occupations. This would serve both as an attempt to replicate our previous findings and an opportunity to examine any other personality differences that emerged among other occupations. Although, as before, we have no specific hypotheses as to what personality differences should emerge, we nonetheless feel it provides a valuable first step in understanding ourselves as a rapidly growing profession.

## Study 2

### *Method*

Using the same set of SIOP members ($n$ = 92) as in Study 1, we now include a wide range of occupations to compare to SIOP members. We obtained personality data on the same five aspects of ADEPT-15 data (cooperativeness, liveliness, mastery, positivity, and structure) from a total of 1112 individuals from a variety of jobs that were compared to the original sample of SIOP members. Data came from the manufacturing, transportation, hospitality, professional services, and safety industries. Table 3 provides descriptive statistics for each of these nine samples, as well as the SIOP sample.

Table 3

*Study 2 Descriptive Statistics by Sample*

| Sample | N | ADEPT-15 Aspect | Mean | *SD* |
|---|---|---|---|---|
| SIOP members | 92 | **Cooperativeness** | 6.63 | 1.91 |
| | | **Liveliness** | 6.12 | 1.85 |
| | | **Mastery** | 6.82 | 1.98 |
| | | **Positivity** | 5.92 | 1.77 |
| | | **Structure** | 4.78 | 2.15 |
| Restaurant managers | 234 | **Cooperativeness** | 6.45 | 1.62 |
| | | **Liveliness** | 6.08 | 1.73 |
| | | **Mastery** | 5.30 * | 1.83 |
| | | **Positivity** | 5.14 * | 1.36 |
| | | **Structure** | 5.50 * | 2.01 |
| Entry-level restaurant employees | 84 | **Cooperativeness** | 7.10 | 1.21 |
| | | **Liveliness** | 6.32 | 1.63 |
| | | **Mastery** | 5.36 * | 1.73 |
| | | **Positivity** | 5.48 | 1.32 |
| | | **Structure** | 5.67 | 2.08 |
| Hospitality Executives | 230 | **Cooperativeness** | 6.74 | 1.63 |
| | | **Liveliness** | 6.38 | 1.56 |
| | | **Mastery** | 6.36 | 1.72 |
| | | **Positivity** | 6.26 | 1.53 |
| | | **Structure** | 5.33 | 1.78 |
| Engineers | 35 | **Cooperativeness** | 6.74 | 1.63 |
| | | **Liveliness** | 6.38 | 1.56 |
| | | **Mastery** | 6.36 | 1.72 |
| | | **Positivity** | 6.26 | 1.53 |
| | | **Structure** | 5.33 | 1.78 |
| Train dispatchers | 30 | **Cooperativeness** | 6.40 | 1.87 |
| | | **Liveliness** | 5.73 | 1.74 |
| | | **Mastery** | 6.47 | 1.68 |
| | | **Positivity** | 6.13 | 1.48 |
| | | **Structure** | 5.37 | 1.79 |
| Managers in transportation | 160 | **Cooperativeness** | 6.21 | 1.84 |
| | | **Liveliness** | 5.78 | 1.53 |
| | | **Mastery** | 6.38 | 1.84 |
| | | **Positivity** | 5.78 | 1.31 |
| | | **Structure** | 4.93 | 1.67 |
| Manufacturing | 229 | **Cooperativeness** | 7.18 | 1.52 |
| | | **Liveliness** | 6.06 | 1.4 |
| | | **Mastery** | 6.75 | 1.67 |
| | | **Positivity** | 5.46 | 1.28 |
| | | **Structure** | 5.52 * | 1.73 |
| Professional services | 62 | **Cooperativeness** | 6.82 | 1.48 |
| | | **Liveliness** | 5.90 | 1.72 |
| | | **Mastery** | 5.89 * | 1.94 |
| | | **Positivity** | 5.11 * | 1.39 |
| | | **Structure** | 5.29 | 1.71 |
| Occupational safety | 49 | **Cooperativeness** | 6.53 | 1.5 |
| | | **Liveliness** | 6.37 | 1.05 |
| | | **Mastery** | 5.92 * | 2.06 |
| | | **Positivity** | 5.59 | 1.29 |
| | | **Structure** | 4.84 | 1.78 |

*Significantly different from SIOP members, $p < .05$

## *Results*

ANOVA analyses were conducted to compare scores on the five ADEPT-15 aspects. The overall *F*-test examined whether there were any differences among the groups. Results showed significant group differences were found for cooperativeness ($F_{9, 1195} = 3.88$, $p < .05$), liveliness ($F_{9, 1195} = 2.44$, $p < .05$), mastery ($F_{9, 1195} = 12.64$, $p < .05$), positivity ($F_{9, 1195} = 3.10$, $p < .05$), and structure ($F_{9, 1195} = 11.89$, $p < .05$). Next, we examined multiple comparisons of mean differences on personality trait levels (using Tukey's HSD). Because the focus of this study is comparing SIOP members to other professions, we limit our results to those pertinent to this question.

SIOP members did not have significantly higher cooperativeness or liveliness than other professions.

However, SIOP members did have higher mean levels of mastery ($M$ = 6.82) than other professions in this study. Of the nine other occupations studied, SIOP members had statistically significantly higher mastery than four groups of employees: restaurant managers ($M$ = 5.30; $p$ < .05), entry level restaurant employees ($M$ = 5.35; $p$ < .05), occupational safety workers ($M$ = 5.92; $p$ < .05, and professional service employees ($M$ = 5.89; $p$ < .05). SIOP members had significantly higher positivity ($M$ = 5.92) than restaurant managers ($M$ =5.14; $p$ < .05) and professional services employees ($M$ = 5.11; $p$ < .05). Finally, SIOP members had lower mean levels of structure than all other jobs ($M$ = 4.78) and had statistically significantly lower structure than restaurant managers ($M$ = 5.50; $p$ < .05) and manufacturing employees ($M$ = 5.52; $p$ < .05).

## General Discussion

The purpose of this paper was to begin to understand what is unique about the I-O psychologist personality as compared to employees in other professions. In two studies comparing members of SIOP to workers in other industries, we found that one trait stood out for SIOP members: mastery, or the tendency to be learning oriented and the desire for improvement. This significant difference was found for a baseline sample featuring a variety of jobs as well as individual comparisons to several other job types. In addition, some specific traits (positivity and structure) were found to differ from certain job types, suggesting that there may be other differences between I-O psychologists and specific jobs.

### *Implications*

Mastery emerged in this preliminary investigation as the primary trait that differentiates I-O psychologists from other professions. This finding suggests that I-O psychologists tend to seek a variety of growth and learning opportunities. Organizations that employ I-O psychologists should make such opportunities available so their employees can have improved job performance and potentially improved job satisfaction (this is conceptually similar to growth needs strength (GNS); they like their job more because their organization provides opportunities for growth and learning, which will lead to better performance; Hackman & Oldham, 1975).

Given further replication of these findings, mastery could be included as an individual difference variable by which organizations, as well as academic institutions, judge a person's ability to be an I-O psychologist. Mastery has been found in previous research to be related to a number of positive outcomes, including job performance (Janssen & Van Yperen, 2004; Porath & Bateman, 2006) and training success (Brett & VandeWalle, 1999; Kozlowski et al., 2001), as well as self-efficacy (Kozlowski et al., 2001), optimism, the desire to work hard, and effort (Brett & VandeWalle, 1999). Similarly, academic institutions and organizations may want to have I-O graduate students and employees higher in mastery because of their desire to learn and develop themselves.

### *Limitations*

We used a convenience sample of SIOP members from the 2015 SIOP conference.

Such a sampling strategy does not allow for a full representation of the I-O personality. Part of the reason this is true is that some SIOP members are not themselves I-O psychologists. Future studies should use larger samples of I-O psychologists for comparison purposes in order to better understand the I-O personality. Further, distinctions between academics and practitioners with various experience and tenure would also be particularly useful. As stated earlier, we aim to position this paper as a call to research and a first step to a better understanding of the I-O personality.

A helpful reviewer noted that the samples may be higher in mastery because it was specifically targeted to those interested in learning about themselves. In other words, there may have been a self-selection effect. Future studies should examine the possibility of self-selection when examining personality traits, and particularly mastery, among different occupational groups.

In addition, the context of the included samples was variable but the instructions provided were the same for all administrations. Specifically, the SIOP data were collected for research purposes only, whereas personality scores from other organizations were variously obtained in the context of research, development, and hiring circumstances. Therefore, it is possible that the results of this study were influenced by differing contexts for the jobs (i.e., hiring versus development) instead of differences in the jobs themselves. Future studies should attempt to separate job context from the personality of employees themselves.
In addition, we were not able to examine effects of race, gender, and other subgroups due to insufficient demographic data from SIOP members. Previous research has shown that mastery orientation in an educational context may have a greater effect on women than men on self-efficacy and on proper cognitive strategies, which then led to greater academic achievement (Patrick, Ryan, & Pintrich, 2000). Future studies should examine how SIOP members of different subgroups may differ in mastery and the differential affect this has on organizational outcomes.
Finally, the data provided in the above studies suggest I-O psychologists tend to be higher in mastery. However, it is unclear whether individuals high in mastery specifically choose to be I-O psychologists because I-O psychology is a research-oriented, academic–practitioner field, or whether other occupations composed predominantly of members with master's- and doctorate-level educations are similarly elevated on mastery. Future controlled studies would allow for the answering of the effect of education on mastery levels within occupations.

## Conclusion

I-O psychology is one of the fastest growing careers in the United States. Despite this, we lack a comprehensive understanding of the personality profile of I-O psychologists. Initial findings presented here from Studies 1 and 2 demonstrate that I-O psychologists tend to be more learning and development oriented than individuals in other occupations, as well as more positive and less structured. We believe these results are just a first step in pursuing a better

understanding of our field. Additional controlled research is required to replicate and expand this line of investigation. Future research should continue to examine what makes I-O psychologists unique from other professions in order to better train and develop them for the future.

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# Anaheim Conference Highlights

**Scott Tonidandel**
**Program Chair**

**Eden King**
**Conference Chair**

Here are some not-to-be missed highlights from the SIOP 2016 conference! (Please see the January 2016 issue of *TIP* and the online program for more comprehensive descriptions.)

## Wednesday

Preregister for the excellent set of pre-conference activities—including informative and inspirational workshops and consortia. All are welcome to join us in celebrating the start of the conference at the welcome reception from 6–8 pm on the beautiful, sunny patio of the Hilton Anaheim.

## Thursday

Opening Plenary: Get the day off to a great start by attending the opening plenary session. We'll cheer for award winners and learn about ways that I-O psychologists are making an impact from President **Steve Kozlowski.**

The conference program gets off to a rousing start with the day-long Theme Track, "Enhancing Impact: A Multilevel Approach" in Room 204C, and two distinguished awards presentations (M. Scott Myers Award and Early Career Contributions to Science). In addition, you will find an executive board special session on the *Revised Guidelines for Education at the Master's and Doctoral Level* and an invited session on the role of I-Os in mergers and acquisitions.

6:00: Thursday Evening Reception: Enjoy hors d'oeuvres and network with the top poster winners!

## Friday

Friday's many highlights include six Friday Seminars (Person-Centered Analyses, The Benefits (and Costs) of Giving Your Employees Voice, Careless Survey Responding, Effective Organizational Socialization and Onboarding, Big Data Predictive Analytics: A Hands-On Workshop Using R, Integrating the Science of Employee Health, Well-Being, and Safety Into I-O Psychology Practice) and three distinguished contributions award (Professional, Teaching, and Early Career-Practice). The day also offers three Executive Board session (Understanding and Supporting the Needs of Those Who Practice I-O, How to Advocate for I-O and Unlock Federal Funding Opportunities, and a Conversation with SIOP Leadership). Last, you won't to miss the Master Collaboration Session on "Orga-

nizational Citizenship Behaviors: Recent Developments in Research and Practice" or our HR Practitioner Track sessions (all day in 204C!).

**Saturday**

Join the Frank Landy 5K Fun Run, which will begin at 7 am steps from the hotel in the palm-tree lined streets of California!

Saturday will close the conference programming just as strongly as it started, so make sure to stay the whole day! Saturday features three Alliance sessions (I-O Psychology at the Vanguard of Decent Work, Big Data, An International Panel on Work and Health) to go along with two executive board sessions (Growing the Impact of I-O Through Local I-O Groups and New Strategies for Driving Visibility and Impact Through SIOP Publications). There will also be the 6th Annual Invited IGNITE session (Teaching I-O Psychology-Tips, Tricks, and Pitfalls) and the Distinguished Scientific Contributions Award.

4:30: Closing Plenary with keynote address by Laszlo Bock: There's no doubt that this year's closing speaker will leave us inspired to make work better everywhere!

6:00: Closing Reception: Make memories with your friends and colleagues at our California-themed closing reception! There will be music, food, and California fun!

**Throughout the Program**

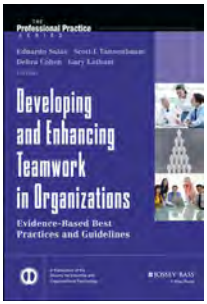
- Posters (20 different sessions this year, including over 500 posters!)
- 9 Master Tutorials
- 4 Debates (on performance management, work family, technology and adverse impact, and org surveys)
- 12 Communities of Interest
- 30 Alternative Session Types featuring creative and high-energy formats conceived by submitters (including IGNITES, research incubators, and an I-O "Shark Tank")
- Over 850 sessions and posters total!

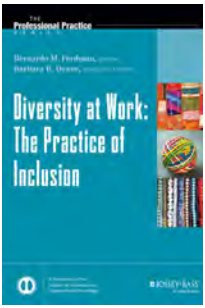
Our amazing conference is just around the corner. Opportunities for learning, networking, and inspiration await you in Anaheim!

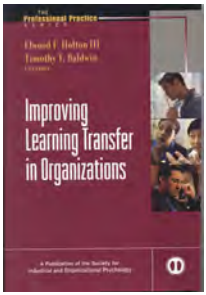

# Professional Practice Series

Ideal for industrial and organizational psychologists, organizational scientists and practitioners, human resources professionals, managers, executives, and those interested in organizational behavior and performance, these volumes are informative and relevant guides to organizational practice. You'll find guidance, insights, and advice on how to apply the concepts, findings, methods and tools derived from organizational psychology to organizational problems.






Get all the latest research today at the SIOP Store


## SIOP Must-See Sessions & Events for Graduate Students

**Wednesday April 13th**

Newcomer Reception for First-Time Attendees
Welcome Reception

**Thursday April 14th**

Opening Plenary Session
IO Academic Career Options: Faculty at Teaching Intensive Institutions
"Getting an Internship" Open House (Panel & Networking Event)
Dos and Don'ts of Graduate School: Surviving and Thriving 2.0
From Grad Student to Professional: Things I Wish I Knew
Developing Publication Process Savvy
Executive Board Special Session: Revised Guidelines for Education at the Master's and Doctoral Level
Distinguished Early Career -Science Award: Test Bias, Differential Validity, and Other Things Along the Way
Distinguished Early Career -Practice Award: The Scientific Method and the Myth of the "Theoretical Contribution" Toothless
Shark Tank for I/O Psychologist-Entrepreneurs
Networking Reception & Top Poster Display

**Friday April 15th**

MythBusters: Debunking Common Early Career Mythconceptions
Distinguished Scientific Contributions Award: Contrarian Thoughts & Attention to Phenomena: A Scientific Journey
Distinguished Teaching Contributions Award: Teaching through the Lens of Research on Training and Learning
Distinguished Professional Contributions Award
21st Century Skills: Why do they matter to I-O?
School's Out for Summer, School's out Forever: Gaining Applied Experience
Early I-O Education: Enhancing Visibility in High School and Undergraduate School
Off the map career paths: Succession, global careers and beyond
Becoming a sole practitioner: Live the dream; embrace the nightmare
Imposter Syndrome: Graduate School and Early Career Experiences on Self-Confidence

**Saturday April 16th**

Mastering Your Future: Sage Advice for Early-Career Master's-Level I-O Psychologists
Invited Session: IGNITE Lightning Round- Teaching I-O Psychology-Tips, Tricks, and Pitfalls
Qualitative Methods for I/O Psychology graduate research
IGNITE Your Career
Formalized Programs for Providing Graduate Students with Professional Practice Experience
Business Acumen or Stories about How to be Relevant
You're the "I" to my "O": Developing Successful Interdisciplinary Experiences
Leaving the Pack: Discussions on Entrepreneurship in I-O Psychology
How to Sell the Value of I-O (part II)
Closing Plenary Session, featuring Keynote Address by Laszlo Bock
Closing Reception

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|---|---|---|---|
| Hilton California D | 5:00PM | 6:00PM | Special Events |
| Hilton Anaheim Hotel | 6:00PM | 8:00PM | Special Events |
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| Hilton California A-D | 8:30AM | 10:00AM | |
| 303 B | 10:30 AM | 12:00 PM | Panel Discussion |
| Hilton Laguna | 11:00 AM | 12:30 PM | Special Events |
| 207 A | 12:00 PM | 1:30 PM | Alternative Session Type |
| 207 A | 1:30 PM | 3:00 PM | Alternative Session Type |
| 203 A | 3:30 PM | 4:30 PM | Community of Interest |
| 203 B | 5:00 PM | 6:00 PM | Special Events |
| 201 A | 5:00 PM | 5:50 PM | Special Events |
| 203 B | 5:00 PM | 5:50 PM | Special Events |
| 303 B | 5:00 PM | 5:50 PM | Alternative Session Type |
| Hilton Pacific C-D | 6:00PM | 8:00PM | |
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| 303 A | 8:00 AM | 9:00 AM | Alternative Session Type |
| 203 B | 9:00 AM | 9:50 AM | Special Events |
| 201 B | 9:00 AM | 9:50 AM | Special Events |
| 201 A | 9:00 AM | 9:50 AM | Special Events |
| 303 D | 12:00 PM | 1:30 PM | Symposium/Forum |
| 207 D | 12:00 PM | 1:30 PM | Panel Discussion |
| 203 A | 1:00 PM | 1:50 PM | Community of Interest |
| 201 D | 3:30 PM | 5:00 PM | Panel Discussion |
| 207 B | 5:00 PM | 5:50 PM | Panel Discussion |
| 303 D | 5:00 PM | 6:00 PM | Panel Discussion |
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| 201 C | 8:30 AM | 10:00 AM | Panel Discussion |
| 204 A | 9:00 AM | 10:00 AM | Special Events |
| 207 A | 10:30 AM | 11:50 AM | Roundtable Discussion |
| 204 A | 10:30 AM | 12:00 PM | Alternative Session Type |
| 204 A | 12:00 PM | 1:30 PM | Panel Discussion |
| 207C | 12:00 PM | 1:30 PM | Panel Discussion |
| 303A | 1:30 PM | 3:00 PM | Panel Discussion |
| 207 D | 3:30 PM | 4:30 PM | Panel Discussion |
| 204 C | 3:30 PM | 4:30 PM | Panel Discussion |
| Hilton California A-D | 4:30PM | 5:30PM | |
| Hilton California A-D | 6:00PM | 8:00PM | |

# Show Me The Money:
# Science Funding Speed Mentoring at the 2016 SIOP Conference!

**SIOP Scientific Affairs Committee**

The SIOP Scientific Affairs committee is delighted to announce it will be hosting its third annual "Science Funding Speed Mentoring" special event at the 2016 SIOP conference in Anaheim, CA on **Friday, April 15, from 5:00-6:30PM in Pacific A of the Hilton Anaheim.** This event complements several other conference events focused on improving science advocacy by providing SIOP members with information and resources to more effectively pursue scientific funding opportunities. Protégés that sign up for this special event will get the opportunity to engage in two (2) consecutive half-hour small group discussions with expert science fundees and funders. The science funding-related topics from which protégés can select on a first-come, first-serve basis are:

The discussions will be limited to no more than seven (7) protégés per mentor to ensure a truly interactive and personal experience, so sign up quickly before space runs out! Don't miss this opportunity to sit down with some of the most knowledgeable funding resources in SIOP. This event is open to Fellows, Members, Associates, International Affiliates, and Student Affiliates.

**To sign up as a protégé, please complete the following survey:** https://umdsurvey.umd.edu/SE/?SID=SV_es8mqGULx8imnfT

If you have any questions about the SIOP Science Funding Speed Mentoring event, please contact **James Grand** at grandjam@umd.edu or **Chris Nye** (nyechris@msu.edu).

| Topic | Description |
|---|---|
| **Trade-offs and Pitfalls** | Advantages and disadvantages of funded research, strategies for deciding when/whether to pursue funding, managing funding requirements |
| **Mistakes to Avoid** | Tips for managing time/expectations, preparing budgets, finding the right funding sources, writing "doable" proposals, generating exciting topics without promising too much |
| **Emerging Fundable Topics** | Identifying topics of interest to funding agencies, "hot" new methods/content areas generating interest among funders |
| **Interdisciplinary Funding** | Partnering on funded research with collaborators outside of psychology, forming multidisciplinary research teams, challenges with crossing disciplinary boundaries |
| **NSF Funding** | Strategies for getting funding from the National Science Foundation, NSF programs relevant to I-O psychology, topics of interest, examples of projects/proposals that have succeeded vs. not succeeded at NSF |
| **DoD Funding** | Strategies for getting funding from the Department of Defense, DoD areas relevant to I-O psychology, topics of interest, examples of projects/proposals that have succeeded vs not succeeded at DoD agencies |
| **Writing Compelling Proposals** | Strategies for crafting effective grant proposals, how to organize/structure a proposal from beginning to end, how to communicate the broader impacts/significance of one's research |
| **Big vs. Small Grants** | Finding funding from non-governmental agencies, writing seed grants, leveraging internal/university grants, tradeoffs in "big" and "small" funding sources |

Contents | Features | Editorials | Reports | my.SIOP

# Team Up at SIOP16 to Make a Local or Global Impact

**Zack Horn**
**Chair, 2016 Theme Track Committee**

"To help others" and "to improve lives." These are, by far, the two most frequent answers I hear when asking I-O psychologists why they chose psychology as a career field. Very noble and aspirational goals, with the underlying theme of making a difference in the world. As I-O psychologists, our study and application of *science for a smarter workplace* certainly fits that bill; however, with technology and social media connecting the world so rapidly over the past few years, many in our field have found *new opportunities* to help others and improve lives. SIOP's *Bridge Builders* and affiliated prosocial programs are noteworthy examples, yet they're just scratching the surface.

If you get inspired by the prospect of using I-O to make an impact in the world around you, you're not alone. In fact, you very well may be in the majority. So much so that the entire 2016 SIOP Theme Track is dedicated to making it easier for you to identify and make a new meaningful impact. All you have to do is show up, and you'll have already begun.

The Theme Track sessions on Thursday, April 14, are packed with insights, examples, tips, and guided planning activities that will turn your "maybe someday" ideas into an actionable plan. Inspired by the *multilevel approach to enhancing impact* offered by SIOP President **Steve Kozlowski**, this year's Theme Track provides all you'll need to get started (see full list of titles, presenters, and descriptions; all sessions in Convention Center 204C):

Session 1 (10:30am):
**How Small Local Efforts Can Yield BIG #Impact**
In this inspiring IGNITE session, you will be inspired by others who have made a difference in their local communities, learn to make a difference at any career stage by thinking locally, and take action by finding communities that could use your assistance.

Session 2 (12:00pm):
**#Impact the World Through Organizations: The Power of One**
In this TED-style session, you will learn how I-O can be used to help the environment, enable sustainable living, help workplaces focus on the greater good, facilitate volunteerism, and have other forms of practical impact.

Session 3 (1:30pm):
**Using I-O to Make an #Impact on the Larger Society**
With this high-profile panel of global influencers, you will learn to translate I-O for policy makers, hear how your peers are solving global problems by applying research findings, be inspired by the broad reach of our impact, and connect with other I-Os who wish and know how to make a difference at the policy level.

Session 4 (3:30pm):
**Creating #Impact With(in) SIOP**
In this how-to session, SIOP introduces a new framework that enables you to identify and support emerging grassroots I-O opportunities, assemble with peers to start new grassroots initiatives, and request support (e.g., advocacy, funding) from SIOP's Executive Board. You will also hear how small grassroots initiatives used peer support to become official SIOP-supported initiatives.

Session 5 (4:30pm):
**Making a Difference Together in #Impact Action Teams**
In this hands-on capstone session, join an *Impact Action Team* (new to SIOP this year!) and begin putting an *Impact Action Plan* into motion. Find others with similar aspirations and craft an achievable goal, define success, and get specific about a plan toward success, all during this session. Whether you arrive with an impact idea or prefer to join a team and enhance its impact, there's a spot for everyone to make that meaningful contribution. No preparation necessary, but if you have ideas in advance, please post to social media using **#SIOP16** and **and #Impact.**

Follow @SIOPtweets, #SIOP16, and the #Impact hashtag on social media to share your ideas and look for new opportunities to make a difference at any level. Start thinking about your "maybe someday" ideas— "someday" will be here April 14th.

On behalf of your Theme Track Committee (**Emily Stehura, Stu Carr, Tara Behrend, Ryan Johnson**, and **Gloria Gonzalez-Morales**), see you at the conference!

Contents | Features | Editorials | Reports | my.SIOP

# United Nations Policy Brief
# Decent Work for All: Leveraging Big Data for a Human-Centered Approach to Sustainable Development

**Alexander Gloss, North Carolina State University**
**Lori Foster, North Carolina State University & University of Cape Town**
**Deborah E. Rupp, Purdue University**
**John C. Scott, APTMetrics**
**Lise Saari, New York University**
**Mathian Osicki, IBM**
**Kristin Charles, Amazon**
**Drew Mallory, Purdue University**
**Dan Maday, Roosevelt University**

"Scientific knowledge is not easily accessible to lay people and policy makers," writes Detlof von Winterfeldt in the *Proceedings of the National Academy of Sciences* (2013, p. 14055). The United Nations means to change that. The Society for Industrial and Organizational Psychology means to help.

The United Nations High Level Political Forum (HLPF) is a central UN policymaker convening point, held for the purpose of reviewing and following up on the 2030 Agenda for Sustainable Development. Its mandates include guiding and leading the implementation of the Sustainable Development Agenda, stimulating policies informed by scientific evidence and country experiences, and addressing new and emerging issues that arise.

The next HLPF will take place on 11-20 July 2016. This will be the first HLPF to occur since the unanimous adoption of the Sustainable Development Goals in September of 2015. In preparation for this event, the United Nations has created a platform for crowdsourcing "science briefs" to inform policy during the upcoming HLPF. This is an avenue for scientists from across the world to be heard at the highest levels of the UN in the form of concise, factual write-ups, which are based on peer-reviewed literature and highlight issues, research, and/or solutions to challenges faced by the UN and its member states. Selected briefs are included in the Global Sustainable Development Report, which is reviewed by policymakers at the HLPF.

The demand for industrial-organizational psychology's scientist–practitioner perspective at the United Nations continues to grow. Late last year, the Society for Industrial and Organizational Psychology (SIOP) was asked to contribute a science policy brief, with a focus on "big data" in particular. SIOP is well positioned to inform discussions on this topic, given industrial-organizational (I-O) psychologists' roles in collecting, shaping,

analyzing, and utilizing big data for decision making in organizational settings and other contexts. The increasingly prominent and powerful intersection between I-O psychology and data science is reflected in substantial conference activity and literature on this topic in recent years, including a SIOP Frontiers volume (Tonidandel, King, & Cortina, 2015) and a focal article on big data—with commentaries—in the journal *Industrial and Organizational Psychology* (Guzzo, Fink, King, Tonidandel, & Landis, 2015).

In the context of the United Nations Sustainable Development Goals, the nexus of data science and I-O psychology has particular relevance to SDG 8, which endeavors to "promote inclusive and sustainable economic growth, employment and decent work for all." Accordingly, SIOP's science policy brief is titled: *Decent Work for All: Leveraging Big Data for a Human-Centered Approach to Sustainable Development*. It was accepted by the Global Sustainable Development Report Team on February 2, 2016; is available online; and is reprinted below, in full.

**References**


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Tonidandel, S., King, E., & Cortina, J. (Eds.). (2015). *Big data at work: The data science revolution and organizational psychology* (SIOP Organizational Frontiers Series). New York, NY: Routledge.

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Brief for GSDR 2016

## Decent Work for All: Leveraging Big Data for a Human-Centered Approach to Sustainable Development


*By Alexander Gloss and Lori Foster in collaboration with the Society for Industrial and Organizational Psychology (SIOP) and SIOP's committee of representatives to ECOSOC*[1,2]



In this brief we provide policy considerations for utilizing Big Data to promote Decent Work, review existing examples of the use of Big Data in support of Decent Work, and make suggestions about how Big Data can be further leveraged to support Decent Work and sustainable development. In particular, we argue for the need to consider people's work-related goals, needs, and capabilities and to use innovative sources of data to better understand work in the informal economy.


### 1. Background

The world has resolved to ensure that all individuals can fulfill their human potential with dignity and equality – including by ensuring access to decent work (United Nations, 2015). People in emerging economies and from lower-income countries (LICs) are often excluded from the formal economy and excluded from fully utilizing the power of information technology for the benefit of their working lives (International Labour Organization, 2014; Van Dijk,

2005). Fortunately, the prevalence of "Big Data"[3] provides previously unthinkable opportunities to more accurately measure, target, and improve working conditions and the lives of people engaged in or looking for work, even among those who lack full and equitable access to such technology (Tonidandel, King, & Cortina, 2015).

## 2. Policy considerations

### 2.1 Promoting Decent Work through Big Data requires ensuring that we are aware of people's work-related goals, needs, and capabilities

When working conditions meet people's fundamental needs, people tend to set their own challenging goals, develop skills, and gain a sense of self-efficacy (Locke & Latham, 2012). In turn, rewarding and productive work contributes to sustainable economic prosperity and job growth. Measuring people's work-related goals, needs, and capabilities is critical to informing policy for sustainable development, and such insight is possible through the competent use of Big Data.

### 2.2 Promoting Decent Work through Big Data requires ensuring that people have competence, autonomy, and relatedness at work

Decades of research has documented at least three universal psychological needs – the need for competence in one's actions, autonomy in the direction of one's life, and relatedness to others (Deci & Ryan, 2012; Gagné & Deci, 2005). These psychological needs are often fulfilled in large part through meaningful forms of Decent Work. Whether or not people's needs for competence, autonomy, and relatedness are being met can be appreciated by asking the right questions and by accessing and analyzing Big Data in the right way.

### 2.3 Promoting Decent Work through Big Data requires us to respect what we know from research about how people work

The gathering, interpretation, and inferences made from information about workers' lives should be guided by theory and existing research from the social and organizational sciences. Analysis of Big Data in relation to people in a work context can lead to misleading indicators, improper inferences, and even conclusions that are unintentionally discriminatory against vulnerable and protected populations (Illingworth, 2015; Whelan & Duvernet, 2015). For example, women's empowerment at work continues to be a critically important aspect of global sustainable development; interventions based upon Big Data that do not take into consideration the unique challenges and obstacles that women face at work might only exacerbate those barriers.

### 2.4 Promoting Decent Work through Big Data requires us to build a common language about work

Although job descriptions and other forms of information about private sector organizations' human resources present considerable promise for use by policymakers, their utility is limited by a lack of generalizable data standards, taxonomies, and metrics. Progress is being made to align data-collection in the private (e.g., www.hropenstandards.org) and public

sector (e.g., www.skillsforemployment.org), yet considerable development still needs to be made. An important way of aligning information about workers' lives is being led by UNESCO as it works to build a global framework of workforce qualifications (Keevy & Chakroun, 2014).

**2.5 Promoting Decent Work through Big Data requires us to ensure that the use of Big Data is not a threat to the people it is meant to help**

Standards for the effective and ethical use of Big Data need to be respected to protect individuals' rights and psychological wellbeing. SIOP has made a series of recommendations for the use of Big Data in the context of work (Guzzo, Fink, King, Tonidandel, & Landis, 2015). These recommendations help to highlight the unique likelihood of Big Data to violate norms of privacy, informed consent, and a sense of personal control over one's life. Methods to avoid harm and personal violations in working contexts include ensuring participation in deciding how and when one is being observed and ensuring transparency regarding data-collection and data use (Guzzo et al., 2015; Karim, Willford, & Behrend, 2015).

## 3. Examples of Using Big Data to promote Decent Work

**3.1 Insight into unemployment sentiment via Twitter**

In coordination with the United Nations Global Pulse Lab, analysis of social media data has added depth to unemployment statistics by developing leading indicators of economic activity based upon the tone of online conversations (SAS, 2011).

**3.2 Identifying promising entrepreneurs in LICs via adaptive surveys**

In order to identify potential entrepreneurs deserving of financial loans but without the necessary formal documentation and credit history, computerized psychological tests have been built and deployed in several countries in Africa and South America (Klinger, Khwaja, & Carpio, 2013). These tests increase in predictive accuracy based upon a constantly evolving global database and help to open doors for sustained economic growth in LICs.

**3.3 Painting a picture of work interests and skills through mobile phones in Tunisia**

In partnership with UNESCO, civil society and private-sector actors in Tunisia have constructed a mobile-based platform to gather information about mobile phone users' vocational interests and career-development skills and to inform those users of career development opportunities and best-practices (GSMA, 2014).

## 4. Promising Sources of Big Data to Promote Decent Work

**4.1 Big Data that supports Decent Work can come from collecting job description information and combining it with other data about work**

A relatively under-utilized form of detailed information about people's working lives is available in the form of job descriptions. Building upon datasets that allow comparisons between jobs, the World Bank and organizational researchers have combined occupational information with occupational employ-

ment figures to produce regional profiles of workforce characteristics and worker needs and capabilities (Gloss, Foster-Thompson, Klinger, & Wright, 2010; World Bank, 2013).

**4.2 Big Data that supports Decent Work can come from crowdsourced work-interest inventories**

Another under-utilized form of insight into worker's lives are vocational interest profiles. These profiles, which allow individuals to assess their own career interests, can provide individual a more accurate picture of possible career options and policymakers a more detailed picture of labor-force characteristics. For example, the Occupational Interest Profiler built by the United States Department of Labor has been widely used internationally by individuals who are entering the work force or making career transitions (Rounds, Su, Lewis, & Rivkin, 2010). In addition, public sector actors in other countries, including in the Republic of South Africa, have worked to leverage insight from vocational interest surveys to provide their workers with career insights and tools (United Nations Development Programme, 2014).

**4.3 Big Data that supports Decent Work can come from aggregating survey pulses**

A promising additional method of data collection about workers' lives has precedent in the private sector. Many leading corporations have innovated by administering micro-surveys to evaluate their workers' levels of work "engagement" on a regular basis (see Macey & Schneider, 2008). Global, national, and/or regional pulse surveys administered via mobile devices that assess critical aspects of workers' lives could greatly assist in providing accurate and timely insight into skill gaps, threats to decent work, and emerging work trends. Such pulse surveys would need to deliberately include workers involved in the informal economy and in vulnerable forms of employment. Micro surveys and greater utilization of Big Data in work contexts could also help to address a particularly problematic threat to decent work – the absence of living wages. Mobile applications to help entrepreneurs and family workers track their income and expenditures could provide aggregated insight into the conditions and challenges of those in the informal sector.

**Notes**

[1]The views and opinions expressed are the authors' and do not represent those of the Secretariat of the United Nations. Online publication or dissemination does not imply endorsement by the United Nations. Authors can be reached at UN@siop.org and more information can be found at http://www.siop.org/Prosocial/UN.aspx.

[2] Special thanks to Pamela Flattau from Psychology of Science in Policy for her advice and assistance in this brief.

[3] For purposes of this analysis, "big data" signifies data of such volume (i.e., the size of data in terms of bytes), velocity (i.e., the speed at which data is created and/or loses currency), and/or variety (i.e., data's structural complexity, its lack of structure, and/or the connections of one or more data sub-sets to other sub-sets) as to make traditional data-analytic methods difficult or impossible (McAfee & Brynjolfsson, 2012).

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# Mile-High Psychology at the Denver APA Convention: August 4-7

**APA Program Committee**

This year's APA Convention is shaping up to be a fantastic one. Consider the evidence:

1. Phenomenal Invited Speakers
   - **Nancy Tippins:** *Evaluating the Assessment of Leaders*
   - **Lynn Offermann:** *College Women Leaders Then and Now---Predicting Career Outcomes 28 Years Later*
   - **Gwen Fisher:** *Challenges, Opportunities, and Best Practices in Promoting Health for Individuals, Families, and Organizations*

2. Outstanding Invited Symposia
   - **Roni Reiter-Palmon and Chris Shalley:** *Creativity and Innovation in Organizations---A Review of Current Findings and Future Directions*
   - **Lori Foster, David Blustein, Terry Tracey, and Alex Gloss**: *Using Vocational and I-O Psychology to Support Decent Work Around the World*
   - **Ann Huffman, Diedre Knapp, and Carl Castro**: *2016 Work Military Trends---Making Tomorrow's Research Agenda Today*

3. Over 50 competitive posters and talks from SIOP members, on topics ranging from emotion to federal employment policy to work-life balance… plus hundreds of papers on measurement, group dynamics, personality, and more from other APA divisions!

4. A social event at *The Office*, right across the street from the Convention Center, on **Thursday August 4**—mingle with old colleagues and meet new ones in a low-key setting

5. The city of Denver as our backdrop, full of culture, nature, and activities

I hope you will make the trip to represent SIOP at the convention. While you're there, say hello to **Mindy Shoss**, the incoming APA Program Chair for 2017.

I also want to say a huge thank you to the reviewers and committee members who worked like crazy this December to get our program in shape. See you all in Denver!

# APA Council Representative Report

**Deirdre Knapp, Lori Foster, Gary Latham, and Georgia Chao**

The 170+ member APA Council of Representatives met in Washington DC February 19-21, 2016.

The policies discussed largely grew out of organizational introspection associated with issues raised by the independent review (IR) report authored by the law firm of Sidley Austin and released in July 2015. Although there have been questions raised about aspects of the IR, there is also broad commitment within Council and the Board of Directors to ensure that APA rededicates to its core mission through policy and organizational functional improvements.

The following motions were passed:

- Establishment of a work group to review organizational policies and procedures (e.g., organizational checks and balances, transparency of decision making, appropriate oversight of governance members in the execution of their roles)
- Establishment of a work group to develop civility principles and procedures
- Amendment to Council guidelines for proposed resolutions to ensure they are consistent with APA's core values and address human rights, health and welfare, and ethics
- Prioritization of ethics, human rights, and social justice in revision of APA's strategic plan
- Establishment of a work group to develop guidelines regarding task force selection

APA has also established an Ethics Commission to examine how APA works to ensure ethical behavior and make recommendations about potential changes. At the time of this writing, there is also proposed language to revise Standard 3.04 of the APA Ethics Code out for public comment for which SIOP is preparing a response. Because SIOP uses the APA Ethics Code, we will be impacted by any changes and need to ensure our voice is heard with regard to changes that might be made.

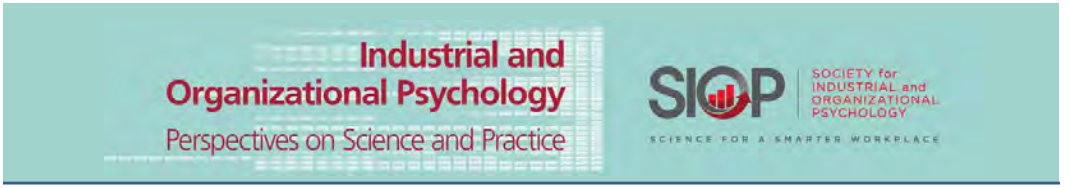
On Council, one way to increase our voice is to combine it with others who share some of our interests through caucus activity. Deirdre Knapp is chair of the General Applied Psychology/Psychologists (GAPP) caucus. We are also active in the Coalition for Academic, Scientific, and Applied Research Psychology (CASAP) caucus.

Despite the nearly $5M spent on the IR and other expenses, APA remains financially healthy because of the large reserves upon which it can draw. With regard to the 2015 operating budget, the largest source of revenue (publications and databases) had a slower rate of growth than anticipated. But efforts to trim expenses (e.g., through freezing some staff positions) helped ensure that 2015 ended with a small budget surplus. In contrast, the APA Practice Organization (APAPO), which is entirely dependent on member dues, is significantly struggling following several years of declining membership.

APA is also searching for a new CEO. Establishing a group to handle vetting of candidates was a politically sensitive task. We are pleased to see that I-O psychologist **Rodney Lowman** is the co-chair and **James Outtz** had been selected for the committee**.**

With any luck we will see one or two SIOP members on the ballot for APA president-elect and probably at least one more running for treasurer. These are influential positions and we applaud those who are willing to be nominated, run, and serve. As your representatives to APA Council, we are committed to ensuring that those SIOP members who belong to APA are represented to the best of our ability and to ensuring I-O influence in what remains the largest voice for psychology in the U.S. If you have questions, ideas, or concerns, please let us know.






## Key Objectives/Changes for 2016

- Incorporate **New Section**: *Practice Forum*
  We welcome Forum Editor Mark Poteet to the Editorial Team

  **Discover more and bring your questions!** John Scott and Mark Poteet will be at the Cambridge University Press stand **12-1pm on Friday**

- Enhance online presence through **new digital platform** 'Cambridge Core'

- Explore video-based Commentaries and podcasts/ webinars associated with Focal articles

- Create **online reading packs** by subject area for practitioners and/or online themed collections

- Elicit critical, cross-disciplinary thinking on topics that have broad appeal to the full SIOP membership

# Report of the Executive Director Selection Advisory Committee

**Tammy Allen, Milt Hakel, Bill Macey (co-chair), Fred Oswald (co-chair), Ann Marie Ryan, Neal Schmitt, Nancy Tippins**

In an email to the SIOP membership just a few weeks ago, SIOP President **Steve Kozlowski** announced the retirement of Dave Nershi as SIOP Executive Director (ED). In that same email, Steve further announced the formation of an ED Search Steering Committee (SC) comprising SIOP's senior elected leaders including Steve, Fred Oswald, **Jose Cortina** (until April 2016), and **Scott Tannenbaum** with overall responsibility to guide and advise the Selection Advisory Committee (SAC). Fred Oswald will serve as liaison to the SC on behalf of the SAC. The composition of the SAC was designed to draw on prior executive leadership in SIOP (i.e., past SIOP presidents); encompass expertise in selection, assessment, and leadership; and—across SAC members—to represent a diverse group of I-O psychologists. SAC has full control over the operational aspects of the search process and will determine the final pool of candidates for selection. The role of the SC is to link the search process to the SIOP Executive Board (EB). Elected members of the EB will ultimately select the next ED from the candidate pool developed by the SAC.

As difficult as it is to accept the news that Dave is retiring, it's also hard to believe that 12 years ago the SIOP Executive Committee embarked on the daunting process of recruiting, selecting, and assessing potential candidates for the ED position. At that time, a small committee (including two members of the present SAC) created a process that ultimately led to Dave's recruitment and subsequent hire. Though time has passed, the overall timeline and phases of the current effort are likely to follow a similar track.

As an outline of what needs to get done, it's useful to consider the timeline of events in reverse order. Dave will retire on **May 1, 2017** after the annual conference. In order to benefit from working alongside Dave, the incoming ED should join the AO team some time before that, just as Dave joined a short time before Lee Hakel's retirement in 2005. That means that hiring of the new ED should necessarily be completed early in **2017**. Again working in reverse order, the role of the SAC will be to recommend a slate of candidates to the SC with sufficient time for review and consideration in **December 2016**. The assessment process is planned to begin in early **October 2016**, with vacancy announcement and recruitment beginning in June. Prior to that, the SAC will determine the requirements of the job, including consideration of ways in which the AO may likely change with respect to continuing growth of the Society and any strategic partnerships SIOP is likely to form. The job analysis and subsequent specifications for the vacancy will be completed by end of **May 2016,** leaving sufficient time for review and feedback from the SC and subsequent revision by us.

Along the way, will keep you informed of progress as the process unfolds. None of what is described above is set in stone, and we are mindful of the different member constituencies who share a common stake in the success of this effort, perhaps with varying perspectives on what defines the most critical aspects defining that success. Your comments and suggestions are always welcome. Please direct them to **Bill Macey** (wmacey9@gmail.com). For obvious reasons we can't guarantee we can adopt any specific idea, but we fully intend to give full consideration to your input.

Dave will be sorely missed by many people for many reasons. So much of what we now take for granted as simply the way things work in SIOP is what Dave and his team at the Administrative Office (AO) have instituted and refined. Dave's role is and has been a critical and demanding one, and we are fully cognizant of the demands on us as an organization to successfully identify his replacement.



## Can't make it to the SIOP Conference?

## Follow all the action on social media!

twitter.com/#SIOP16

twitter.com/SIOPtweets

www.facebook.com/siop.org/

www.linkedin.com/groups/72806/profile

# Professional Practice Committee Update

**Mark L. Poteet**
**Organizational Research & Solutions, Inc.**

Greetings SIOP! As we approach the Annual Conference in Anaheim, I want to devote some time to update membership on the progress of several Professional Practice Committee (PPC) projects and goals, as well as to acknowledge the terrific work of the committee's members in making this progress possible. SIOP is fortunate to have such an incredible team of professionals focused on helping advance the practice of I-O psychology and support I-O psychologists who practice.

SIOP practitioners and SHRM professionals have yet another resource for their development in the form of a new SHRM-SIOP Science of HR Series white paper, published on the SHRM and SIOP websites. The paper, entitled "Strategies for Engaging and Retaining Mature Workers," was authored by **Margaret E. Beier**, can be found here. In addition, a new work stream within this SHRM–SIOP collaboration has been piloted: the Joint Webinar Series. The webinars series is designed to help human resources professionals to learn about the science and evidence supporting human resources practices, presented by SIOP members. The first webinar presented in late January covered the subject of employee background checks and was presented by **Michael Aamodt**. It was very well attended by SHRM members, and review of feedback is underway to determine future directions of this work. Thanks to **David Dubin** and **Jim Kurtessis** for their excellent work in leading these efforts.

SIOP's initiative to create Contemporary Selection Recommendations (CSR) for the Equal Employment Opportunity Commission (EEOC) has made good strides in recent weeks. Specifically, the SIOP Task Force's products (e.g., white papers) have been reviewed by several members of the EEOC. In addition, at the time of this writing, several members of the task force and the PPC are scheduled to meet with leadership and technical staff from the Equal Employment Opportunity Commission (EEOC) to share feedback and comments, explore different ways in which the products can be used, establish next steps in the project, and discuss additional avenues for the collaborative work between SIOP and EEOC. Much thanks goes to **Eric Dunleavy**, **Rich Tonowski**, David Dubin, and **Kyle Morgan** for their persistent efforts with this initiative.

As can be seen in the current issue of *TIP*, there are two articles highlighting the work of the PPC. First, the third of several planned articles summarizing results of the 2015 Practitioner Needs Survey, authored by **Ben Porr**, **Ted Axton**, **Meredith Ferro**, and **Soner Dumani**, has been produced. This article covered practitioners' views on practice areas where additional science and research would be beneficial. Second, **Craig Wallace**, **Lynda Zugec,** and

I provide an introduction to a new *TIP* column focused on highlighting science–practice collaboration within I-O psychology. Going forward, while the PPC will work with the Scientific Affairs Committee (SAC) and *TIP* in overseeing and managing the production of articles, we are relying on the experiences and input of all of SIOP members to form the content for this column. Therefore, if you have examples or experiences with effective science-practice collaboration, please contact either Lynda (lynda.zugec@theworkforceconsultants.com) or Craig (craig.wallace@okstate.edu).

Reflecting science–practice collaboration, the PPC worked with the SAC and the Government Relations Advocacy Team to review and comment on proposed changes to the "Common Rule" published online in the *Federal Register*. The PPC focused its review of the proposed changes on their potential impact to the practice of I-O psychology. Special thanks goes to **Jerilyn Hayward,** Kyle Morgan, Ben Porr, and **Donna Roland** for their diligent efforts in reviewing the collective hundreds of pages and providing valuable feedback to support SIOP's response.

Finally, given this time of the year, it is worth noting that over the last year there has been great progress in a number of the PPC's goals and initiatives. Without question, this progress would not have been possible without the tremendous volunteer efforts of many committee members. Still, with some members preparing to transition off of the committee after dedicating 3 years of service, and with several current initiatives still underway (and potentially others planned!), additional help will always be needed and welcomed. If you have ever wanted to play a significant role in shaping SIOP's efforts to enhance the practice of I-O psychology and are interested in working on some of the PPC's initiatives, I strongly encourage you to register your interest on the Committee Volunteer System through the SIOP website. If you would like more information about the PPC's activities or goals, want to learn more about volunteering for the committee, or have any feedback or ideas for how the PPC might further support the effective practice of I-O psychology, please contact me directly at mlpoteet@verizon.net.

Contents | Features | Editorials | Reports | my.SIOP

# IOTAS

**Alyssa LaCava**
**Xavier University**

## Honors and Awards

**Rob Silzer** was presented the Society of Consulting Psychology's top honor—the 2016 International Award of Excellence in Consultation—at its Midwinter Conference in Orlando earlier in February. SCP is Division 13 of the American Psychological Association. Silzer was recognized for his leadership of consulting organizations, his voluminous practice serving clients around the world, and his contributions as a thought leader in the field of consulting psychology. The SCP Awards Committee cited the sheer quantity of his work, noting his prolific accomplishments in scholarship and his efforts to contribute to the training of other consultants. Rob is managing drector of HR Assessments and Development Inc. and is on the doctoral faculty of Baruch College Graduate Center of City University of New York (CUNY). He is a Fellow in SIOP, APA, APS, and SCP.

See more at: http://www.siop.org/article_view.aspx?article=1485#sthash.2v1H939D.dpuf

**Dr. Talya N. Bauer** has been selected as a 2016 Distinguished Women Scholar Honoree. Dr. Bauer had an impressive set of credentials and exemplifies the Purdue spirit in her work and dedication to her field. The Butler Center for Leadership Excellence held a celebration and recognition ceremony in March.

## Transitions, New Affiliations, Appointments

**Lynda Zugec** is the new chair-elect for the Canadian Society for Industrial and Organizational Psychology (CSIOP). CSIOP, an official section of the Canadian Psychological Association (CPA), is an organization whose mission is to further the welfare of people by: helping organizations effectively manage their human resources, scientifically investigating human behavior and cognition at work, and helping individuals realize their work goals, including helping them to maximize job satisfaction and minimize work stress. CSIOP members consist of faculty from both psychology departments and business schools, consultants from various organizations, and students from numerous universities. Zugec's goal as chair-elect is, "to increase active involvement in CSIOP initiatives so that we can better enable and further develop I-O in Canada."

**Marc Sokol** is now executive editor of *People + Strategy,* journal of the HR People + Strategy Association. The most recent issue, "Ensuring Enterprise Security: A Pivotal Role for HR," includes "Critical Success

Factors for the Chief Information Security Officer" by **Rich Klimoski,** "The Accident Prone Personality" by **Robert Hogan**, and case studies of changing the safety culture in different types of organizations (NY Transit, a large hospital, a college environment). Contact Marc directly is you would like a copy of the most recent issue or to see the call for papers.

The UNC Charlotte Organizational Science program is thrilled to welcome **Alyssa McGonagle** this fall to our program faculty, which includes George Banks, **Anita Blanchard**, Janaki Gooty, **Eric Heggestad, Steven Rogelberg, Enrica Ruggs, Linda Shanock,** Justin Webb, and **Dave Woehr.**

The Xavier University School of Psychology is pleased to announce that **Dr. Dalia Diab** received tenure and was promoted to the rank of Associate Professor. Dr. Diab teaches in Xavier's MA I-O program along with fellow SIOP members **Mark Nagy** and **Morrie Mullins**.

**Good luck and congratulations!** Keep your colleagues at SIOP up to date. Send items for IOTAs to **Tara Behrend** at behrend@gwu.edu.

# SIOP Members in the News

**Clif Boutelle**

When we think of the media, it is the major newspapers, magazines, and network radio and television that come to mind. While they still remain important to any organizations seeking to generate awareness, the internet has created a whole new avenue of media outlets that should not be overlooked. In fact, more and more organizations are utilizing Internet sites and social media to tell their stories.

A growing number of SIOP members are finding their way onto internet sites because writers, whether mainstream media or on the internet (often reporters are writing for both), still need credible resources. So, the opportunities for media mentions are expanding and that is good for the field of I-O psychology and SIOP members.

In addition, a number of SIOP members have developed relationships with publications and are contributing articles on a regular basis.

Following are some of the press mentions, including online sites, which have occurred in the past several months:

The February 18 *Arizona Sun* had a story about a research project dealing with concussion reporting being conducted by **Ann Huffman** of Northern Arizona University and colleagues from NAU's athletic training education program. They are examining how organizational culture influences concussion reporting and then will test different strategies to change the culture and increase reporting rates. They have received a $400,000 grant from the NCAA and U. S. Department of Defense for the effort, which will be undertaken over the next two and a half years.

Big Data technology and the services market is one of the fastest growing, multibillion dollar industries in the world, and the February 3 issue of *Onalytica*, a data research firm, listed Big Data's top influencers, which included **Evan Sinar** of Development Dimensions International (DDI). Among the newest domains for Big Data's immense reach, and risks, is to track and improve workplace productivity, he said. But with this massive amount of data come major quandaries on how this data are used. Companies need their leaders to be both data-savvy enough to verify that all information gathered about employees is accurate, and fair and trusted enough to credibly communicate the rationale for capturing the data in the first place, he said.

Also, the February 1 *Fast Company* reported a study conducted by Development Dimensions International (DDI) that found though men and women score equally in their ability to drive businesses, fewer women are able to get beyond lower-level leadership positions, and it's not because of lower competence, said DDI's Evan Sinar. The study analyzed the differences between men and women on business drivers and found no statistically differences. Business

drivers are focused on the broad leadership challenges that leaders must absolutely overcome to execute an organization's business strategy, Sinar said. The study did find significant differences in three personality traits: men scored higher in inquisitiveness and impulsiveness while women were higher in interpersonal sensitivity.

Sinar also contributed to a January 21 story in *Baker Hospital Review* that featured a DDI report on the characteristics of successful leaders. Personality is a "vital factor in leadership success," according to the report, which found that leaders across all levels who were ambitious and possessed high interpersonal sensitivity demonstrated a better ability to manage transitions as they moved up the ranks. Also, successful leaders are passionate about getting results, decision making, and driving execution. "We found that leaders who are successful…are unlike others in the way they are able to stay laser focused on outcomes and demand specifics on how results can be achieved," Sinar said.

**Paul Winum** of RHR International contributed to a February 1 *Wall Street Journal* story about how General Motors is reshaping its culture by adding more outsiders to its leadership team and not relying as much on promoting from within. Winum noted that GM CEO Mary Barra wants to install a different culture at the automaker and "newcomers are not steeped in the old culture." But it will take time. "Large scale culture change inside big companies like GM usually takes years to take effect," he said.

In the February 1 issue of *Inc Magazine*, **Adam Grant** of the University of Pennsylvania had a column excerpted from his new book, *Originals*, describing how creative people need to craft their vision to persuade people to accept radical ideas. He cited the case of a young woman who had an idea to build a transducer to send power over the air (even wireless needs to plug into an electrical outlet). Nearly everyone she approached with her idea deemed it impossible. Eventually she altered her pitch. When she could not persuade technical experts to take a leap with her, she convinced them to take a few steps by masking her purpose. It worked, and now her company has 18 patents and more than $10 million in venture funding. The lesson: original thinkers need to become tempered radicals and present their bold visions in ways that are less shocking and more appealing to mainstream audiences.

Grant's book, *Originals, How Non-Conformists Move the World*, is getting a great deal of attention in the media. The book uses real-life examples to show how innovators see the world differently and bring others into their success. Stories have appeared in the *New York Times*, *Forbes*, *The Atlantic*, *Financial Times*, *The Guardian* among others as well as on television (*Fox News*) and radio (*NPR*).

In a culture obsessed with productivity, *Quartz*, a global digital-only business news publication, in a February 1 story cited research findings by **Sabine Sonnentag** of the University of Mannheim in Germany that showed people who do not know how to

step away from work during their downtime experienced increased exhaustion over the course of the year and became less resilient when faced with stressful work conditions. Gaining some emotional distance from highly demanding work tends to help people recover from stress faster, she said.

A story in the February 1 *Forbes* described how IBM has made major changes in its annual performance review system, replacing yearly goals by giving employees the opportunity to shift goals throughout the year and providing more frequent feedback. It's a trend that many organizations are adopting. **Kevin Murphy** of Colorado State University said the trend is not surprising. "Performance reviews are very expensive, complex systems for making people unhappy," he said. "So companies are saying, 'this is time consuming. We're going to pull the plug and do something much simpler.'"

Murphy's comments appeared in the February 20 issue of *The Economist*, which had an article stating that reports of the death of performance reviews are exaggerated. Though some companies are saying they are abandoning performance reviews, in reality they are not getting rid of the reviews; they are modifying them, and not necessarily for the better. The article includes arguments, pro and con, for the new-style reviews. However, provided they are carried out consistently, rationally, and fairly, and supplemented with more frequent feedback, annual performance reviews have many virtues. Murphy was also previously quoted in *The New Yorker* about problems with performance appraisals.

A story in the January issue of *Business Insider* states that successful people understand their success starts and ends with their mental and physical health, which is almost entirely dependent upon getting enough sleep. It is important to disconnect from work before going to bed, said **Michael "Woody" Woodward** of Human Capital Integrated. "The last thing you need is to be lying in bed thinking about the email from an overzealous boss with random requests driven by little more than a momentary impulse," he said. He says to give yourself a buffer of at least a half hour between the time you read your email and the time you go to bed.

**Alicia Grandey** of Penn State contributed to stories that appeared in a January 28 broadcast on *ABC10-TV* in Sacramento and February 1 on *WFMY-TV* in Greensboro, NC about the toll of emotional labor on workers. The story was first reported in *Marketplace*. "Emotional labor is a type of work where instead of physical labor using your muscles to perform the work, you're using your emotions to perform the work. It's an ongoing, constant expectation for eight hours. It's the central aspect of what you're doing and whether you're doing it well," she said. She has done research suggesting faking happiness all day long is emotionally taxing. "Faking creates a sense of dissonance between internal and external states over long periods of time and that's been shown to create physical tension which can build up and create health issues and over time result in job burnout."

A January 8 *New York Times* story about millennials points out that young people

are a lot more traditional when it comes to staying at their jobs than popularly believed. Bureau of Labor Statistics data show that millennials change jobs less frequently than people in other generations. Research by **Jennifer Deal** and Alec Levenson in a study of 25,000 millennials in 22 countries found at least 40% expect to stay with their current employers for at least 9 years and 44% said they would be happy to spend the rest of their career at their current organizations.

**John Boudreau** of the University of Southern California authored a column in the January 5 issue of *Talent Management Magazine* describing how HR practitioners are eager to see the profession step up to bigger future challenges. He cited research he and **Edward Lawler** had done over the years showing that HR's relationship to corporate boards is traditional: advising on executive compensation and succession. There are signs this traditional mindset may be changing. A further study found that CEO's see important future contributions and roles for HR and playing a much larger and significant role in organizational strategies.

**Ben Dattner** of Dattner Consulting in New York City contributed an article to the February 4 *Harvard Business Review* online, describing how organizations can use a scorecard to make better hiring decisions. By using a quantitative interview scorecard to evaluate the qualifications and suitability of job candidates, and by comparing interview-based projections with subsequent performance on the job, it's possible to boost your interview hit rate and your organization's return on human capital investment over time, he wrote.

Dattner also had an article in the December 10 *Harvard Business Review* titled "How Structured Debate Helps Your Team Grow." The article pointed out the risks of "groupthink," where teams operate on autopilot, reach a consensus and do not appropriately consider emerging challenges, debating alternative scenarios or exploring new courses of action. He said one strategy that can help teams avoid the dangers of "groupthink" is by randomly assigning different team members to argue opposing points of view. Structured debates can provide an opportunity to rigorously discuss and dispute interpretations of current trends, as well as future predictions, in a kind of organizational "safe mode" that enables teams to explore external risks without putting individual team members at internal risk.

**Tomas Chamorro-Premuzic** of Hogan Assessment Systems contributed an article to the December 28 issue of *Fast Company* about striking the right balance in shaping how peoples' competencies are perceived at work. Too much self-promotion can be damaging to a career but people should not be shy about taking credit for their accomplishments, he wrote.

Please let us know if you, or a SIOP colleague, have contributed to a news story. We would like to include that mention in SIOP Members in the News.

Send copies of the article to SIOP at boutelle@siop.org or fax to 419-352-2645 or mail to SIOP at 440 E. Poe Rd., Ste 101, Bowling Green, OH 43402.

# Conferences and Meetings

Please submit additional entries to **Marianna Horn** at Marianna.Horn@Sodexo.com.

## 2016

March 30–April 2
Annual Conference of the Southeastern Psychological Association. New Orleans, LA. Contact: SEPA, www.sepaonline.com. (CE credit offered.)

April 8–12
Annual Convention, American Educational Research Association. Washington, DC. Contact: AERA, www.aera.net.

April 7–11
Annual Convention, National Council on Measurement in Education. Washington, DC. Contact: NCME, http://www.ncme.org/ncme/NCME/

April 10–13
HRPS Global Conference. Scottsdale, AZ. Contact: HRPS, www.hrps.org.

April 14–16
Annual Conference of the Society for Industrial and Organizational Psychology. Anaheim, CA. Contact: SIOP, www.siop.org. (CE credit offered.)

May 12–14
15th National Conference of Industrial and Organizational Psychology. Cluj-Napoca, Romania.
Contact: http://www.apio.ro/conferinta/

May 22–25
Annual Conference of the Association for Talent Development. Denver, CO. Contact: ATD, https://www.td.org/ .

May 26–27
18th International Conference on Applied Psychology. Tokyo, Japan. Contact: https://www.waset.org/conference/2016/05/tokyo/ICAP.

May 26–29
Annual Convention of the Association for Psychological Science. Chicago, IL. Contact: APS, www.psychologicalscience.org. (CE credit offered.)

June 9–11
Annual Conference of the Canadian Psychological Association. Victoria, British Columbia. Contact: CSIOP, http://csiop-scpio.ca/

June 19–22
Annual Conference of the Society for Human Resource Management. Washington, DC. Contact: SHRM, www.shrm.org. (CE credit offered.)

July 30–August 4
Joint Statistical Meetings. Chicago, IL. Contact: American Statistical Association, www.amstat.org (CE credit offered.)

August 4–7
Annual Convention of the American Psychological Association. Denver, Colorado. Contact: APA, www.apa.org (CE credit offered.)

August 5–9
Annual Meeting of the Academy of Management (AoM). Anaheim, CA. Contact: AoM, http://aom.org/.

September 19–23
Annual Conference of the Human Factors and Ergonomics Society. Washington, DC. Contact: The Human Factors and Ergonomics Society, www.hfes.org. (CE credit offered.)

October 21–22
SIOP Leading Edge Consortium, Atlanta, GA
Contact: SIOP, www.siop.org.
(CE credit offered.)

October 21–22
River Cities I-O Psychology Conference. Chattanooga, TN. Contact: http://www.utc.edu/psychology/rcio/

October 22–30
Annual Conference of the American Evaluation Association. Atlanta, GA. Contact: AEA, www.eval.org.

## 2017

March 8–11
Annual Conference of the Southeastern Psychological Association. Atlanta, GA. Contact: SEPA, www.sepaonline.com. (CE credit offered.)

April 27–29
Annual Conference of the Society for Industrial and Organizational Psychology. Orlando, FL. Contact: SIOP, www.siop.org. (CE credit offered.)

April 26–30 Annual Convention, National Council on Measurement in Education. San Antonio, TX. Contact: NCME, http://www.ncme.org/ncme/NCME/

April 27–May 1
Annual Convention, American Educational Research Association. San Antonio, TX. Contact: AERA, www.aera.net.

May 25–28
Annual Convention of the Association for Psychological Science. Boston, MA. Contact: APS, www.psychologicalscience.org. (CE credit offered.)

August 3–6
Annual Convention of the American Psychological Association. Washington, DC. Contact: APA, www.apa.org
(CE credit offered.)

August 4–8
Annual Meeting of the Academy of Management (AoM). Atlanta, GA. Contact: AoM, http://aom.org/.

October 9–13
Annual Conference of the Human Factors and Ergonomics Society.
Austin, TX. Contact: The Human Factors and Ergonomics Society, www.hfes.org. (CE credit offered.)

November 8–11
Annual Conference of the American Evaluation Association. Washington, DC. Contact: AEA, www.eval.org.